



**P1GxxFE**  
**Portable Aggregating/Filtering TAP**  
**Firmware Rev Level: 1.0.48**  
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## 1. Introduction

### 1.1. Purpose

Garland Technology's Portable Filtering Network TAPs with Remote Management and Filtering functionality is a flexible Network Access System that supports Breakout, Aggregation, Regeneration/SPAN TAPs.

Filtering + aggregation reduces the possibility of oversubscribing the monitor ports by removing the traffic that the monitoring tools that is of no interest.

This document describes, in detail, how the portable TAPs can be setup to access your critical network links, aggregate and filter at layers 2, 3 and 4 if required before distributing the traffic out to your monitoring tools and appliances.

### 1.2. Scope

The scope of this document is limited to Garland Technology 1G Portable Filtering TAPs with Remote Management release **P1GxxFE\_v1.0.48**. It shows you how to access all the different menus and navigate through the various sections of the program to allow you to set up the functionality of the various TAPs that are applicable to this portable filtering TAP series.

### 1.3. General Information

The P1GxxFE Filtering TAPs are a Scalable Portable Network Access and Traffic Distribution series of TAPs for 10Mbps, 100Mbps and 1000Mbps Networks.

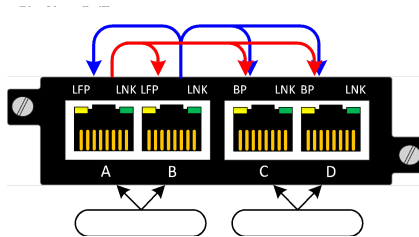
The Garland Technology 1Gbps P1GxxFE series of TAPs provides access to your network's 10Mbps, 100Mbps and 1000Mbps traffic by aggregating copper or fiber links together and sending the aggregated traffic out to Network Analysis, Monitoring and/or Security Appliances. This TAP series can also filter out the traffic that the tools and appliances have no interest in, to avoid oversubscribing the monitoring ports.

There is a RJ-45 Serial Management port that allows access to the Command Line Interface (CLI) and an Ethernet RJ-45 Management port so the Chassis can be connected to the network for remote management once you set up the network configuration.

#### TAPs

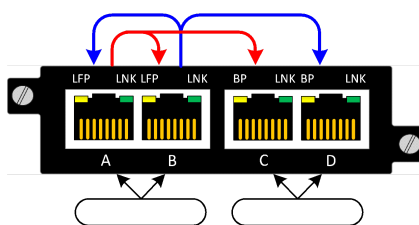
Network test access points (TAPs) are a hardware tool that allows you to monitor your network.

**Aggregation mode** is used to capture full duplex network traffic. In aggregation mode, the bidirectional traffic on the network ports is aggregated and routed to the monitor ports.



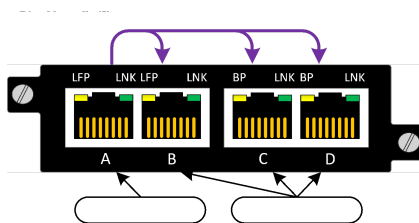
**Figure 1:** Aggregation Mode Traffic Flow

**Breakout Mode** is used when each direction on the network port needs to be analyzed separately or to avoid oversubscription. Incoming traffic of port A is mirrored to monitor port C and incoming traffic of port B is mirrored to monitor port D.



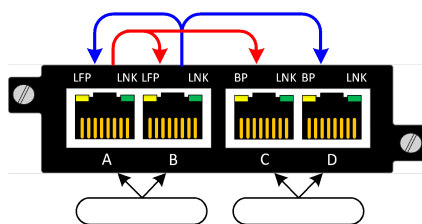
**Figure 2:** Breakout Mode Traffic Flow

**SPAN Mode** is used when the TAP is not used inline, but has already been tapped. The single network port is mirrored to the three remaining monitor ports.



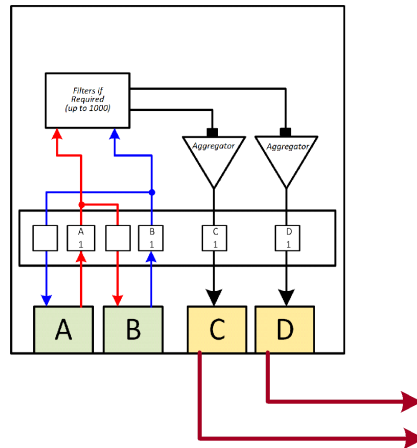
**Figure 3:** SPAN Mode Traffic Flow

**Filtering Mode** allows filtering and flexibility. Various filters can be applied to the network traffic and the results can be routed to either or both monitor ports of the filtering TAP.



**Figure 4:** Filter TAP Passing Port 80 Traffic

The Portable Filter TAPs will allow you to parse out your network traffic to your monitoring tools in just about any way you want. You can filter on layers 2, 3 and 4 if what you want to filter on is in the first 128 bytes of the packet, you will be able to sort it out to go to the tool that you want. We will provide examples of filtering in Chapter 7.



**Figure 5:** Filter Aggregation Mode TAP Flow Diagram Port 80 Traffic

## 2. Installation

To Deploy the P1GxxFE TAPs featuring Filtering capability into the network, the following steps apply:

- Carefully unpack the TAP.
- You will need to plug the Power adaptor to an AC power outlet to apply power to the TAP.



- You need to connect to the TAP Management port to set up the type of Filtering you require for your application. See chapter 6.1 for details.

## 3. Features

P1GxxFE Portable TAPs support breakout, aggregation, filtering, and regeneration/SPAN modes. They allow you to fully deploy and manage your analysis, monitoring and security appliances.

- **Up to 4 Portable TAPs only occupy 1U of 19" Rack:**
- **Management options:**



- Remote management of the Portable Filtering TAP is provided through the Management ports located on the rear of the unit. The serial port provides local access to the TAP so that the network parameters can be set up locally. Once this is accomplished, the TAP can be accessed remotely through the Ethernet port.
- **Syslog Reporting:**
  - Significant events reported via syslog
- **snmp Management:**
  - configuration and event traps available via snmp
- **Port Mapping:**
  - filter allows granular selection of network traffic at layers 2, 3 and 4 of the packet to provide monitoring tools only to the traffic they are designed (or intended) to inspect.
- **Multi-Tier Filtering Supports:**
  - Layer 2, 3 and 4 Filtering (MAC, VLAN, IP, DSCP, TCP, UDP)
- **Network Failsafe:**
  - recognizes power outages and automatically closes the relay circuitry in less than 8 milliseconds then, reconnects the two network devices connected to Ports A & B.
- **Supports jumbo frames and passes physical errors.**
- **Packet Slicing and Packet Injection:**
  - when in aggregate mode on copper network port TAPs
- **100% secure and invisible:**
  - no IP address, no MAC address; cannot be hacked
- **Made, tested and certified in USA**

#### 4. Front View

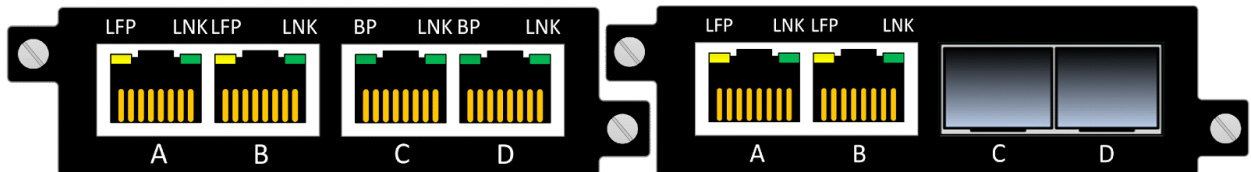


Figure 6: Copper to Copper and Copper to SFP Ports



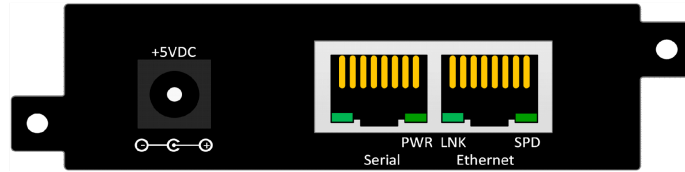
Figure 7: MM Fiber to MM Fiber and MM Fiber to SFP Ports



Figure 8: SM Fiber to Copper and SM Fiber to SFP Ports

## 5. Rear View

Rear View of the 1U and 2U 1Gbps Packet Broker System



**Figure 9:** Rear View of P1GxxFE with Management Ports

## 6. Administration

You will need to change the default IP address. To do this, you will need to connect to the serial management port so you can set up the Network parameters, using the furnished RS232 to DB9 cable;

1. Connect the RJ45 end to the RJ45 Serial Port on the P1GxxFE TAP.
2. Connect the other side of the RS232 cable to your PC's RS232 port.
3. Use any terminal emulation software (PuTTY, HyperTerminal, Etc.) to connect to the CLI interface to manage the P1GxxFE chassis.
4. Set up the following terminal communication parameters on the terminal emulation software:

Speed:	115200-default
Data Bits:	8
Parity:	none
Stop Bits:	1
Flow Control:	No flow control

5. Power up the P1GxxFE TAP
6. The Login prompt will appear in the terminal window
7. Enter the default Login name (**admin**)
8. Enter the default password (**gtadmin1**)

Following the above procedure will log you into the TAP and bring up the Main Menu.

```
Garland Technology P1GCCFE (Code Version: 1.0.48)

Main Menu

Select:

1. Change/View Module Configuration
2. Filtering
3. Username/Password
4. Settings
5. Upgrade
6. Users
0. Logout
Select:
```

**Figure 10: Main Menu**

From the Main Menu, **press '4'** to get to the Settings Menu.

```
Garland Technology P1GCCFE

Settings Menu

1. NetworkConfig
2. Key Press Timeout
3. NTP setup
4. Time Zone setup
5. Date & Time setup
6. syslog Setup
7. snmp Setup
8. System reboot
0. Exit
Select: █
```

**Figure 11: Settings Menu**

### **6.1. Network Configuration**

After logging in you should change username and password by going to the Network Configuration menu on the Settings Menu if you plan to use the management Ethernet port, setup IP address, net mask and gateway parameters. The default IP address is **10.10.10.200** and the Network mask is **255.255.255.0** and the Gateway **10.10.10.1**.

**Press '1'** to bring up the Network Configuration Menu to set up the proper network addresses to allow the Packet Broker to operate in its local environment.

```

Garland Technology P1GCCFE

Network Configuration
WARNING: This session depends on the current network config.
        Applying network config may drop this session.

link:up
current ip add:50.84.50.100
current config:static add:50.84.50.100 mask:255.255.255.248 gwy:50.84.50.97
                dns1:8.8.8.8 dns2:8.8.4.4
new config:static add:50.84.50.100 mask:255.255.255.248 gwy:50.84.50.97
                dns1:8.8.8.8 dns2:8.8.4.4

1.re-init interface
3.ip address
4.netmask
5.gateway
6.dns1
7.dns2
8.ping
0.exit with new config
ctrl-c.exit with NO new config
select:
  
```

**Figure 12:** Network Configuration Menu

Once you enter the network settings, **pressing '0'** will exit back to the settings menu with the new configuration.

While we are on the Settings Menu, we can finish setting up the Key Press Timeout, Date and Time setup, and the Syslog setup.

## 6.2. Key Press Timeout

The Management portal of the Packet Broker is designed to log off after 5 minutes (default setting) of no activity (no key press). The Key Press Timeout Menu allows changing the timeout from 1 to 60 minutes.

**Press '2'** on the Settings Menu to bring up the Key Press Timeout Menu to change the Timeout Setting.

```

Garland Technology P1GCCFE

Key press timeout Menu

current timeout: 50 minutes.
ctrl-c to exit menu with no change.
Enter a value between 1-60 (minutes) :
  
```

**Figure 13:** Key Press Timeout Menu

Type in the new time and **press <enter>** to return to the **'Settings Menu'**.

## 6.3. NTP Setup

From the Settings menu, **press '3'** to get to the **'NTP Setup Menu'**.

```
Garland Technology P1GCCFE
```

```
NTP Setup Menu
```

```
Current NTP configuration: OFF
```

```
  New NTP configuration: OFF
```

```
1. ntp ON
```

```
0. Exit
```

```
Select: █
```

**Figure 14: NTP Setup Menu**

Setting the Network Time Protocol (NTP) is handled from the setup screen. **Press ‘1’** to turn ‘NTP’ on.

```
Garland Technology P1GCCFE
```

```
NTP Setup Menu
```

```
current NTP configuration: OFF
```

```
  new NTP configuration: ON   ip:192.168.1.100
```

```
ping 192.168.1.100...FAIL
```

```
1. ntp OFF
```

```
2. change ip
```

```
3. use pool.ntp.org
```

```
a. apply
```

```
0. Exit
```

```
Select: █
```

**Figure 15: NTP Setup Menu**

## 6.4. Time Zone Menu

**Press ‘4’** to bring up the ‘Time Zone Setup Menu’.

```
Garland Technology P1GCCFE
```

```
Time Zone Setup Menu
```

```
current time zone: America/Chicago
```

```
  new time zone: America/Chicago
```

```
1. Africa
```

```
2. America
```

```
3. Asia
```

```
4. Australia
```

```
5. GMT+-x
```

```
6. Europe
```

```
7. Pacific
```

```
0. Exit
```

```
Select: █
```

**Figure 16: Time Zone Setup Menu**

## 6.5. Date & Time Setup

The Date & Time Setup Menu provides you the ability to setup the date, time, and year for your chassis. These menus are self-explanatory. After you finish setting up the Date and Time information on this menu, **Press '0'** to return to the Settings Menu.

```
Garland Technology   P1GCCFE
Date & Time Setup Menu
current date/time: 11/5/2016 20:16
new date/time: 11/5/2016 20:16
1. Change month
2. Change day of month
3. Change year
4. Change hour
5. Change minute
0. Exit
Select: █
```

**Figure 17:** Date & Time Setup Menu Timeout Menu

## 6.6. Syslog Configuration Menu

Syslog is a standard for Message logging. Syslog is a way for network devices to send event messages to a logging server – usually known as a Syslog server.

The Syslog protocol is supported by a wide range of devices and can be used to log different types of events.

For example, a router might send messages about users logging on to console sessions, while a web-server might log access-denied events.

**Press '6'** on the Settings Menu to bring up the Syslog Configuration Menu

```
Garland Technology   P1GCCFE
Syslog Configuration Menu
current syslog setting: OFF
new syslog setting: OFF
1. turn syslog ON
0. Exit
Select: █
```

**Figure 18:** Syslog Configuration Menu

**Press '1'** to turn Syslog 'ON'

```

Garland Technology   P1GCCFE
Syslog Configuration Menu

current syslog setting: OFF
  new syslog setting: ON   ip:192.168.1.100 UDP:514
ping 192.168.1.100...FAIL
1. turn syslog OFF
2. turn unit identifier ON
3. send test syslog
4. change ip
5. use TCP
6. change port
a. apply changes
0. Exit
Select: █
  
```

**Figure 19: Syslog Config Menu Turned 'ON'**

When Syslog is **ON** the Syslog Menu lets you;

1. Turn Syslog ON or OFF
2. Turn Unit Identifier ON or OFF
3. Send a Test Syslog
4. Change the ip Address

Once you have Syslog set the way you want it, **press 'a'** to apply the changes then **press '0'** to **'EXIT'** and return to the **'Settings Menu'**.

### 6.6.1. What is Syslog?

Syslog is a way for network devices to send event messages to a logging server – usually known as a Syslog server. The Syslog protocol is supported by a wide range of devices and can be used to log different types of events.

Syslog is a way for network devices to send event messages to a logging server – usually known as a Syslog server.

The Syslog protocol is supported by a wide range of devices and can be used to log different types of events.

For example, a router might send messages about users logging on to console sessions, while a web-server might log access-denied events. The following is a list of events that Syslog can report on for the GT Packet Broker System

### 6.6.2. What will Syslog report on?

#### **Syslog will report on the following condition changes:**

**System Startup**                      When the System comes up after a Power Up cycle or software upgrade.

**Module enters Bypass Mode**      Bypass TAP Module enters bypass mode.

**Module enters In-line Mode**      Bypass TAP enters In-Line Mode

<b>Module Link Down</b>	Module's Network/Monitor port has lost Link.
<b>Module Link Up</b>	Module's Network/Monitor port has linked up.
<b>New Module detected</b>	New module detected on the Backplane.
<b>Module no longer present</b>	A module has been unplugged.
<b>Power Supply Down</b>	Power Supply A or B has gone down.
<b>Both Supplies Up</b>	Both Supplies now up.
<b>System Software Upgrade</b>	A system software is being installed. □
<b>Module Software Upgrade</b>	A Module software is being installed

## 6.7. Snmp Configuration Map

Simple Network Management Protocol (SNMP) is a popular protocol for network management. It is used for collecting information from network devices, such as servers, printers, hubs, switches, and routers on an Internet Protocol (IP) network. Microsoft Windows Server 2003 provides SNMP agent software that works with third-party SNMP management software to monitor the status of managed devices and applications.

```
Garland Technology  P1GCCFE
Syslog Configuration Menu

current syslog setting: OFF
new syslog setting: ON      ip:192.168.1.100 UDP:514
ping 192.168.1.100...FAIL
1. turn syslog OFF
2. turn unit identifier ON
3. send test syslog
4. change ip
5. use TCP
6. change port
a. apply changes
0. Exit
Select: █
```

**Figure 20:** snmp Configuration Menu

Use SNMP management software to monitor any network device on which you install SNMP agent software. The SNMP agent interacts with third-party SNMP management software to enable the sharing of network status information between monitored devices and applications and the SNMP management system that monitors them. If you make any changes remember to **press 'a'** to apply them before leaving this screen.



```

Garland Technology P1GCCFE

snmp Configuration Menu

current:
off
  new:
V2c community:public port:161 ip:127.0.0.1 :162
Ping 127.0.0.1...PASS
1. turn snmp OFF
2. send test snmp trap
3. change trap ip
4. change trap port
5. change access port
7. V2c community password
a. apply changes
0. Exit
Select: █
  
```

**Figure 21:** snmp Configuration Menu ‘New setup’

**Press ‘0’** to go back to the Settings Menu, **Press ‘8’** if you want to execute a **‘System Reboot’** else **press ‘0’** again to return to the **‘Main Menu’**.

Before being able to upgrade the portable TAP with the latest software, the user needs to place the upgrade file onto the desktop. The Uploader address for this product is IP address of the Chassis. So, go to your preferred Browser and enter the IP address and a simple screen will appear. Press the Choose File button and find the upgrade file that you placed on your desktop then press the Upload Button. The Uploader will upload the upgrade file to the chassis. Once the file has been transferred to the chassis, the user must go to the upgrade menu on the CLI (**Press 5 on the Main Menu**). There, he will see option 1 appear IF the uploaded file uploaded intact and is recognized as an upgrade file for this product. Verify that the uploaded version is the version that you expected. Once you press option 1 the program will then install the upgrade and reboot the system. Task accomplished.

```

Garland Technology P1GCCFE

Upgrade Menu

No upgrade file downloaded.

0. Exit
Select: █
  
```

**Figure 22:** Upgrade Menu

If upgrading the chassis is not on your task list, on the **‘Main Menu’** **press ‘6’** to go set up the Users

**6.8. Users**

The last area of the portable TAP that needs to be set up is the User section where we assign who has access to what sections of the TAP’s administration.

Selecting '6' on the Main Menu Screen will show the 'User Administration' menu. This menu will only be seen by the ADMIN. The assigned Users will see only the menus that are applicable to their privileges (see Users Help Menu).

```
Garland Technology  P1GCCFE
User Administration
Select:
1. Add User
2. Delete User
3. Change Password
4. Change Privilege
0. Return
```

**Figure 23: User Administration Menu**

There are up to 20 users and one ADMIN that can be assigned to manage the P1GXXFE Portable TAPs.

The ADMIN has full privilege to all operations. **Press '1'** to add a new User.

```
Garland Technology  P1GCCFE
Add User Menu

new user name:user. privilege:OPERATOR.
Select:
1. Change Username
2. Change privilege to operator.
3. Change privilege to logger.
4. Change privilege to bypass.
h. Help.
x. Abort and Return
0. Apply Return
```

**Figure 24: Add User Menu**

### 6.8.1. User ADMIN

There is only one administrator per portable TAP. The ADMIN can create or delete a USER. To create a User, the ADMIN will log into the Packet Broker and assign a USERNAME and PASSWORD for the USER. For example, the assigned username is 'samhill'. So, the assigned password will also be 'samhill' (in this process the Password is the same as the Username. The user can change his username and password after he logs in for the first time, making sure he observes the rules in the User Help Menu.

### 6.8.2. User OPERATOR

The operator user can change/view module configuration, manage the creating or deleting of filters. The operators cannot add or delete Users.

### 6.8.3. User LOGGER

The logger user has the singular ability manage whatever is happening in Syslog.

#### 6.8.4. User BYPASS

The BYPASS user has the singular ability of managing the bypass function of the Bypass TAP modules that are installed into the chassis.

Press **'h'** to bring up the **'Add User Help Menu'**. This menu will explain the operator privileges. Press **any key** to return to the **'Add User Menu'**.

```

Garland Technology  P1GCCFE
Add User Menu Help
This menu allows the ADMIN to add users.
Usernames may be up to 20 lowercase alphanumeric characters as
well the characters '\_@-'.
The first character should be a lowercase alpha character (a-z)
Privileges can be one of the following three selections:
OPERATOR...view and modify module config and filters.
LOGGER.....change syslog config
BYPASS....view module config and filters, change bypass config
press any key to return to add user menu.
  
```

Figure 25: Add User Help Menu

## 7. P1GxxFE Module Group

The P1GxxFE Portable TAP group was designed to provide more flexibility to manage the traffic to be sent out to the monitoring tools attached to the TAP. You will need to log into the TAP and configure the TAP to perform the task that you need want it to do.

As we learned when we were setting up the administration section of the TAP, the first menu to come up after the login procedure is the Main Menu

```

Select slot number to view/modify

Chassis serial number: 21870020103  Controller Serial Number: 21910020100

Power Supply 1: Up

# : Module Type
  Operating Mode (Current State)
-----
 1: P1GCCFE          2: Slot Empty      3: Slot Empty      4: Slot Empty

Press
1: Select Slot  1      2: Select Slot  2      3: Select Slot  3      4: Select Slot  4
0. Exit
  
```

Figure 26: Select slot number to view/modify Menu

From the Main Menu Screen, **press '1'** to bring up the **'Select the slot number to view/modify'** screen. This screen will provide information about the Portable TAP like the serial number, and the part number of the TAP being installed.

Next **press '1'** to bring up the **'Slot 1 Status'** screen where a P1GCCFE Portable TAP is installed. This screen will show how the TAP is currently set and provide you the buttons you need to change the speed, the duplex mode, the LFP mode or restore the default settings of the modules. The features on the screens will vary depending on the type of TAP you are setting up. Once you get to the screen pertinent to each type of TAP, the screen is self-explanatory.

```

=====
Slot 1 Status:
=====
Link State:   Port A       Port B       Port C       Port D
Speed:        100M         100M         1G           1G
Duplex:        Full          Full          Full          Full
Media Type:   RJ45         RJ45         RJ45         RJ45
Serial Number 00000
Software Version: Boot:1.2.2 App:1.2.54
=====
Slot 1 Select Option:
=====
Press
1: Set Network Ports Speed(Forced 100Mbit Full Duplex)
2: Set Monitor Ports Speed(Forced Gbit Full Duplex)
3: Set LFP mode (OFF)
b: Restore Defaults
c: Port Utilization
Press Enter to refresh this status screen
0. Exit
  
```

**Figure 27:** Slot 4 Status Screen for the P1GCCFE

## 7.1. Description

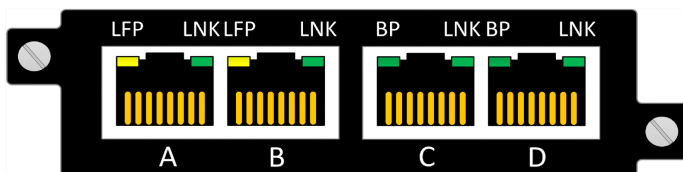
In this section, we will show you the description for each TAP in the P1GXXFE Portable TAP series. These Portable TAPs provide a whole new level of traffic manipulation. The PBS not only lets you filter the traffic before sending it out to the monitoring tools and appliances, but it can also aggregate together, traffic from multiple links, so you could need fewer tools to monitor more links.

The P1GXXFE Portable TAP Group is made up of the following Modules.

1. P1GCCFE Copper network ports to copper monitor ports
2. P1GCSFE Copper network ports to SFP monitor ports
3. P1GMCFE Multi-mode network ports to copper monitor ports
4. P1GMSFE Multi-mode network ports to SFP monitor ports
5. P1GSCFE Single-mode network ports to copper monitor ports
6. P1GSSFEE Single-mode network ports to SFP monitor ports

### 7.1.1. P1GCCFE Module

10/100/1000M Filtering TAP Module with Link Speed Synchronization: Two (2) Copper 10/100/1000M RJ-45 Network Ports with two (2) Copper 10/100/1000M RJ-45 Monitoring Ports.



**Figure 28:** Front View of P1GCCFE

The Copper to Copper Modules can to operate at 10Mbps, 100Mbps or 1000Mbps network speeds on both the Network ports and the Monitor ports.

### 7.1.2. P1GCCFE Configuration

```

=====
Slot 1 Status:
=====
Link State:      Port A      Port B      Port C      Port D
Speed:          100M        100M        1G          1G
Duplex:         Full        Full        Full        Full
Media Type:     RJ45        RJ45        RJ45        RJ45
Serial Number:  00000
Software Version: Boot:1.2.2 App:1.2.54
=====
Slot 1 Select Option:
=====
Press
1: Set Network Ports Speed(Forced 100 Mbit Full Duplex)
2: Set Monitor Ports Speed(Forced Gbit Full Duplex)
3: Set LFP Mode (OFF)
b: Restore Defaults
c: Port Utilization
Press Enter to refresh this status screen
0. Exit
  
```

**Figure 29:** Slot 4 Status screen

#### 7.1.2.1. Slot 'X' Status Screen

**Press '1'** to bring up the **'Slot 1 Status'** screen. This screen will provide the status of the P1GCCFE portable TAP. In this case the link state of all the ports is 'Up'. The speed of network ports A & B is 100Mbps the speed of the monitor ports C & D is Autonegotiate 1G. The Duplex is set for 'Full'. This screen also provides you with the serial number of the module and the software version that is installed.

#### 7.1.2.2. Network Port Speed Config

**Pressing '1'** will allow you to change the Network port speed (currently set for Autonegotiate 100M). There are seven different ways that you can set the speed of the network ports that have copper media. Once you set it up as you want, **press '0'** to return and apply.

```

=====
Slot 1 Network Speed Configuration
=====

Original Network speed: Autonegotiate 1G
  New Network speed: Autonegotiate 1G
1: Autonegotiate 1G
2: Autonegotiate 100M
3: Autonegotiate 10M
4: Forced Gbit Full Duplex
5: Forced 100 Mbit Full Duplex
6: Forced 10 Mbit Full Duplex
7: Synchronize
0. Return and Apply
  
```

**Figure 30:** Network Port Speed Configuration

**7.1.2.3. Monitor Port Speed Config**

**Pressing ‘2’** will allow you to change the Monitor ports speed (currently set for ‘Forced Gbit Full Duplex)

```

=====
Slot 1 Network Speed Configuration
=====

Original Network speed: Forced Gbit Full Duplex
  New Network speed: Forced Gbit Full Duplex
1: 1G
2: 100M
0. Return and Apply
  
```

**Figure 31:** Monitor Port Speed Configuration

**7.1.2.4. LFP Mode Config**

**Pressing ‘3’** will allow you to change the ‘LFP’ mode (currently set for ‘LFP OFF’).

```

=====
Slot 1 LFP Mode Configuration
=====

Current LFP state: ON
  New LFP state: ON

1. ON
2. OFF

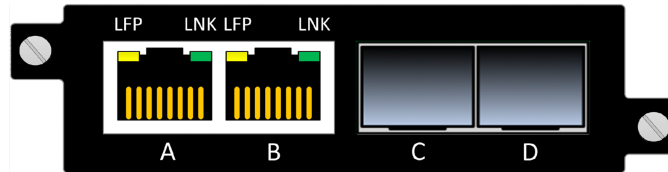
0. Return and Apply
  
```

**Figure 32:** LFP Mode Configuration

LFP is used mostly for High Availability (HA) designed networks. When turned on, it can sense a network failure and reflect the failure to the adjacent port of the live network allowing the network’s failover mechanism to switch over to the secondary network path.

### 7.1.3. P1GCSFE Module

10/100/1000M Filtering Portable TAP with Link Speed Synchronization: Two (2) Copper 10/100/1000M RJ45 Network Ports with two (2) SFP Gigabit Monitoring Ports.



**Figure 33:** Front View of P1GCSFE

The Copper to SFP Portable TAPs can be set to operate at 10Mbps, 100Mbps or 1000Mbps network speeds on the network ports and 1Gbps on the monitor ports.

### 7.1.4. P1GCSFE Configuration

```

=====
Slot 1 Status:
=====
Link State:      Port A      Port B      Port C      Port D
Speed:          1G          1G          1G          1G
Duplex:         Full          Full          Full          Full
Media Type:     RJ45         RJ45         SFP          SFP
Serial Number:  00000
Software Version: Boot:1.2.2 App:1.2.50
=====
Slot 1 Select Option:
=====
Press
1: Set Network Ports Speed (Autonegotiate 1G)
TAPS with non copper monitor ports have monitor ports set to 1Gbps
3: Set LFP Mode (ON)
b: Restore Defaults
Press Enter to refresh this status screen
0. Exit
  
```

**Figure 34:** Slot 4 Status screen

#### 7.1.4.1. Slot 1 Status Screen

**Press '1'** to bring up the 'Slot 1 Status' screen. This screen will provide the status of the P1GCSFE portable TAP. In this case the link state of all the ports is '**Up**'. The speed of all the links is 1Gbps. The Duplex is set for '**Full**'. This screen also provides you with the serial number of the module and the software version that is installed.

#### 7.1.4.2. Network Port Speed Config

**Pressing '1'** will allow you to change the Network port speed (currently set for Autonegotiate 1G). There are seven different ways that you can set the speed of the network ports that have copper media. Once you set it up as you want, **press '0'** to return and apply.

```

=====
Slot 1 Network Speed Configuration
=====

Original Network speed: Autonegotiate 1G
New Network speed: Autonegotiate 1G
1: Autonegotiate 1G
2: Autonegotiate 100M
3: Autonegotiate 10M
4: Forced Gbit Full Duplex
5: Forced 100 Mbit Full Duplex
6: Forced 10 Mbit Full Duplex
7: Synchronize
0. Return and Apply
  
```

**Figure 35:** Network Port Speed Configuration

**7.1.4.3. Monitor Port Speed Config**

SFP monitor ports operate at only 1Gbps.

**7.1.4.4. LFP Mode Config**

**Pressing ‘3’** will allow you to change the ‘LFP’ mode (currently set for ‘LFP ON’).

```

=====
Slot 1 LFP Mode Configuration
=====

Current LFP state: ON
New LFP state: ON

1. ON
2. OFF

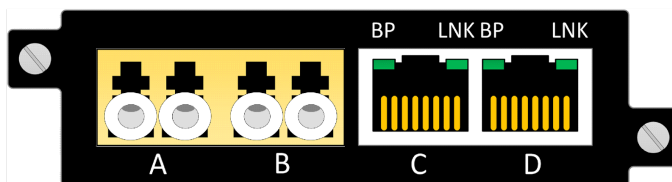
0. Return and Apply
  
```

**Figure 36:** LFP Mode Configuration

LFP is used mostly for HA designed networks. When turned on, it can sense a network failure and reflect the failure to the adjacent port of the live network allowing the network’s failover mechanism to switch over to the secondary network path

**7.1.5. P1GMCFE Module**

1000M Filtering TAP Module: Two (2) Multi-Mode Passive Fiber LC Network Ports with two (2) Copper 1000M RJ-45 Monitoring Ports.



**Figure 37:** Front View of P1GMCFE



The Multi-Mode 1Gbps Fiber Network ports to 1Gbps Copper Monitor Port Modules can operate at 1000Mbps speeds. Allows you to convert the Multi-Mode network media to connect to Copper Monitoring tools.

### 7.1.6. P1GMCFE Configuration

```

=====
Slot 1 Status:
=====
Link State:      Port A          Port B          Port C          Port D
Speed:          Up              Up              Up              Up
Duplex:         1G              1G              1G              1G
Media Type:     Full          Full          Full          Full
Serial Number:  MMF          MMF          RJ45          RJ45
Software Version: 00000
                  Boot:1.2.2  App:1.2.50
=====
Slot 1 Select Option:
=====
Press
TAPs with Fiber Network ports have network ports set to 1Gbps
2: Set Monitor Ports Speed(Forced Gbit Full Duplex)
TAPs with Fiber Network Ports always have LFP ON.
Press Enter to refresh this status screen
0. Exit
  
```

**Figure 38:** Slot 1 Status screen

#### 7.1.6.1. Slot 1 Status Screen

**Press '1'** to bring up the 'Slot 1 Status' screen. This screen will provide the status of the P1GMCFE. In this case the link state of all the ports is 'Up'. The speed of all the links is 1Gbps. The Duplex is set for 'Full'. This screen also provides you with the serial number of the module and the software version that is installed. Because the network ports' media is fiber, the network port speed is set to 1Gbps. Monitor ports to 1Gbps, Full Duplex or 100Mbps Autonegotiate by **pressing '2'** on the Slot 1 Status Screen.

#### 7.1.6.2. Slot 1 Monitor Screen

**Press '2'** to bring up the Slot 3 Monitor Speed Configuration screen. **Pressing '1'** will set the monitor ports to Forced Gbit Full Duplex and **Pressing '2'** will set monitor ports to Autonegotiate 100Mbps. **Press '0'** to Return and Apply.

```

=====
Slot 1 Monitor Speed Configuration
=====
Original Monitor speed: Forced Gbit Full Duplex
New Monitor speed: Forced Gbit Full Duplex
1: 1G
2: 100M
0: Return and Apply █
  
```

**Figure 39:** Monitor Speed Configuration

### 7.1.7. P1GMSFE Module

1000M Filtering TAP Module: Two (2) Multi-Mode Passive Fiber LC Network Ports with two (2) SFP Monitoring Ports.

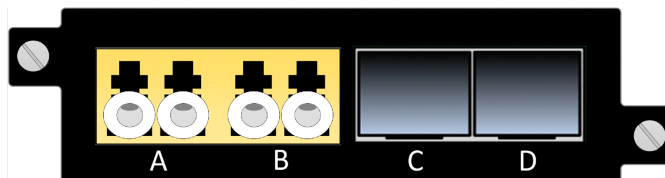


Figure 40: Front View of P1GMSFE

The Multi-Mode 1Gbps Fiber Network ports to SFP Monitor Ports Portable TAPs can operate at 1000Mbps speeds. Can be used to connect to a Multi-Mode Monitoring device or convert the media from Multi-Mode Fiber to Single mode fiber.

### 7.1.8. P1GMSFE Configuration

```

=====
Slot 1 Status:
=====
Link State:      Port A      Port B      Port C      Port D
Speed:          1G          1G          1G          1G
Duplex:         Full        Full        Full        Full
Media Type:     MMF        MMF        SFP
erial Number:   00000
Software Version:  Boot:1.2.2  App:1.2.50
=====
Slot 1 Select Option:
=====
Press
TAPs with Fiber Network ports have network ports set to 1Gbps
TAPs with SFP monitor ports have monitor ports set to 1Gbps.
TAPs with Fiber Network Ports always have LFP ON.
Press Enter to refresh this status screen
0. Exit
  
```

Figure 41: Slot 1 Status screen

#### 7.1.8.1. Slot 1 Status Screen

**Press '1'** to bring up the 'Slot 1 Status' screen. This screen will provide the status of the P1GMSFE module that is installed in Slot 1. In this case, the link state of all the ports is 'Up'. The speed of all the links is 1Gbps. The Duplex is 'Full'. This screen also provides you with the serial number of the module and the software version that is installed.

### 7.1.9. P1GSCFE Module

1000M Filtering TAP Module: Two (2) Single Mode Passive Fiber LC Network Ports with two (2) Copper 1000M RJ-45 Monitoring Ports.

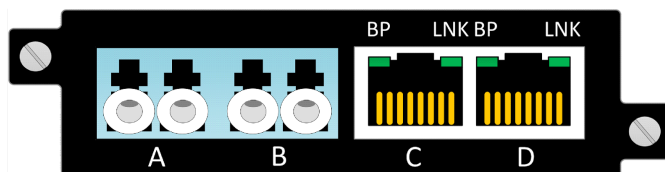


Figure 42: Front View of P1GSCFE

The Single-Mode 1Gbps Fiber Network ports to 1Gbps Copper Monitor Port Modules can operate at 1000Mbps speeds. Allows you to convert the Single-Mode network media to connect to Copper Monitoring tools.

### 7.1.10. P1GSCFE Configuration

```

=====
Slot 1 Status:
=====
Link State:      Port A      Port B      Port C      Port D
Speed:          1G          1G          1G          1G
Duplex:         Full        Full        Full        Full
Media Type:     SMF        SMF        RJ45       RJ45
Serial Number:  00000
Software Version: Boot:1.2.2 App:1.2.50
=====
Slot 1 Select Option:
=====
Press
TAPs with Fiber Network ports have network ports set to 1Gbps
2: Set Monitor ports' speed (Forced Gbit Full Duplex).
TAPs with Fiber Network Ports always have LFP ON.
Press Enter to refresh this status screen
0. Exit
  
```

**Figure 43:** Slot 1 Status screen

#### 7.1.10.1. Slot 1 Status Screen

**Press '1'** to bring up the 'Slot 1 Status' screen. This screen will provide the status of the P1GMCFE portable TAP. In this case the link state of all the ports is 'Up'. The speed of all the links is 1Gbps. The Duplex is set for 'Full'. This screen also provides you with the serial number of the module and the software version that is installed. Because the Monitor ports' media is copper, you can set the monitor ports to 1Gbps, Full Duplex or 100Mbps Autonegotiate by **pressing '2'** on the Slot 1 Status Screen.

```

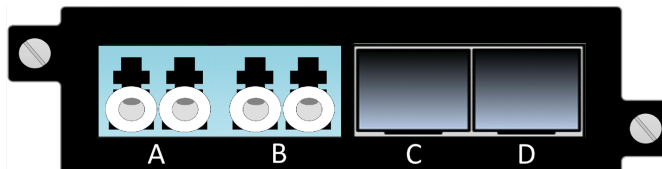
=====
Slot 1 Monitor Speed Configuration
=====

Original Monitor speed: Forced Gbit Full Duplex
New Monitor speed: Forced Gbit Full Duplex
1: 1G
2: 100M
0: Return and Apply
  
```

**Figure 44:** Slot 1 Status screen

### 7.1.11. P1GSSF Module

1000M Aggregating Portable TAP: Two (2) Single Mode Passive Fiber LC Tap Ports with two (2) SFP Monitoring Ports,



**Figure 45:** Front View of P1GSSF

The Single-Mode 1Gbps Fiber Network ports to 1Gbps SFP Monitor Ports Modules can operate at 1000Mbps speeds. Can be used to connect to a Single-Mode Monitoring device or convert the media from Single-Mode Fiber to Multi-Mode fiber.

### 7.1.12. P1GSSFE Configuration

```

=====
Slot 1 Status:
=====
Link State:      Port A      Port B      Port C      Port D
Speed:          1G          1G          1G          1G
Duplex:         Full        Full        Full        Full
Media Type:     SMF         SMF         SFP         SFP
Serial Number:   00000
Software Version: Boot:1.2.2 APP: 1.2.50
=====
Slot 1 Select Option:
=====
Press
TAPs with Fiber Network ports have network ports set to 1Gbps
TAPs with SFP Monitor ports have monitor ports set to 1Gbps
TAPs with Fiber Network ports always have LFP ON.
Press Enter to refresh this status screen
0. Exit
  
```

**Figure 46:** P1GSSFE Configuration

#### 7.1.12.1. Slot 1 Status Screen

**Press '1'** to bring up the 'Slot 1 Status' screen. This screen will provide the status of the P1GSSFE module that is installed in Slot 1 of row 1 of the chassis. In this case, the link state of the all ports is 'Up'. There is nothing more to configure because the network ports of the P1GSSFE are fiber the speed is always set for 1Gbps and the Duplex is always set for 'Full'. This screen also provides you with the serial number of the module and the software version that is installed.

## 7.2. Filter Configuration

**Pressing '2'** on the Main Menu Screen, will begin the Filtering setup process

```

Garland Technology P1GCCFE (Code Version: 1.0.48)

Main Menu

Select:

1. Change/View Module Configuration
2. Filtering
3. Username/Password
4. Settings
5. Upgrade
6. Users
0. Logout
Select:
  
```

**Figure 47:** Main Menu Screen

We will set up filters for Layer 2, Layer 3 and Layer 4  
 When **Pressing '2'** from the Main Menu Screen the screen in figure 48 will come up.

```

Garland Technology P1GCCFE

Row 1 Filters

No Filtrs defined for row 1.

u: cursor up d:cursor down v:view c:clear count
a:add e: edit i:insert x:delete
t:filter up g:filter down r:reset h:help
0:exit
Select:█
  
```

**Figure 48:** Row 1 Filters

### 7.2.1. Layer 2 Filter Set up

We will begin by setting up a Layer 2 Filter. Layer 2 filtering allows filtering on the source MAC address, the destination MAC address or the VLAN ID. These may be used in any combination with each other or any other filter field.

**Press 'a'** to begin the process of adding and defining a layer 2 filter. This will bring up the Edit Filter menu.

The program has provided the default name 'FILTER' for the Filter. **Press '1'** to change the filter's name.

```

Edit filter:
1.Name : FILTER
2.Ports : [ |unav|unav|unav]
3.Counter Used : YES
4.Source MAC address :
5.Destination MAC address :
6.VLAN ID :
7.Layer 3 :
0:Exit
Enter menu selection:
Filter Name: FILTER█
  
```

**Figure 49:** Changing the filter name

**Pressing '1'** causes the program to add a line '**Filter Name: FILTER**' at the bottom of the menu. Using the Backspace Key, erase the word FILTER and enter the new name 'case 432A'. Press the **RETURN** key and the new filter name replaces the default filter name on the name line of the edit filter screen.

```

Edit filter:
1.Name                : Case 432A
2.Ports               : [   |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             :
0:Exit
Enter menu selection:
  
```

**Figure 50:** Filter has a new name

The next step is to define the Ingress port(s) for this filter. **Press ‘2’** to bring up the ‘Select Ingress Port(s)’ screen.

```

TAP Control P1GCCFE

Select Egress Port(s)

map: [ io |unav|unav|unav]

Slot 1 - P1GCCFE:
1: C1 [*]
2: D1 [ ]
i: Ingress Ports Menu
0:exit
  
```

```

TAP Control P1GCCFE

Select Egress Port(s)

map: [ io |unav|unav|unav]

Slot 1 - P1GCCFE:
1: C1 [*]
2: D1 [ ]
i: Ingress Ports Menu
0:exit
  
```

**Figure 51:** Select Ingress Port(s) Screen    and    **Figure 52:** Egress port(s)

Next **Press ‘2’**. This places an asterisk “\*” in the Brackets of port B1 as well as placing an ‘i’ in its respective position on the ports map line.

You can go directly to the ‘Select Egress Port (s) menu to setup the egress port(s) by **pressing ‘e’**. When you see the Select Egress Ports screen, **Press ‘1’** to select the egress port ‘C1’ and places a ‘o’ in its respective position on the ports map line. **Press ‘0’** to return to the Edit Filter Screen. We now have an ‘i’ in the B1 position of the ports map and an ‘o’ in the C1 position of the ports ma0p line.

```

Edit filter:
1.Name           : Case 432A
2.Ports          : [ io |unav|unav|unav]
3.Counter used   : YES
4.Source MAC address :
5.Destination MAC address :
6.VLAN ID        :
7.Layer 3        :
0:Exit
Enter menu selection:
  
```

**Figure 53:** Back to Edit Filter Screen

**Press '0'** to return to the Row 1 Filters Screen. As you can see, we now have a 'case 432A' filter which can send traffic from port B1 to port C1. At this point, ALL traffic will be sent as there are no filters defined yet. Note the presence of the 's' in the menu. This indicates that the filter has not been saved in flash memory or downloaded to the modules yet. **Press 's'** now.

```

Garland Technology P1GCCFE

Row 1 Filters  ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

  #: Name           Ports           Count
-> 1: Case 432A     [ io |unav|unav|unav]  0

u:cursor up  d:cursor down  v:view        c:clear count
a:add         e:edit         i:insert       x:delete
t:filter up  g:filter down  r:reset       h:help
0:exit       ***s:SAVE AND APPLY FILTERS***
Select:
  
```

**Figure 54:** Row 1 Filters Screen

Once the save is completed, the Row 1 Filters Screen will look like **Figure 56**. Notice the 's' selection is gone. Now we want to copy the case 432A filter, then edit it, to filter on the destination MAC address.

```

Garland Technology P1GCCFE

Row 1 Filters

  #: Name           Ports           Count
-> 1: Case 432A     [ io |unav|unav|unav]  0

u:cursor up  d:cursor down  v:view        c:clear count
a:add         e:edit         i:insert       x:delete
t:filter up  g:filter down  r:reset       h:help
0:exit
Select:
  
```

**Figure 55:** Row 1 Filters Screen with case 432A in progress

We can copy the case 432A filter by **pressing the 'F1'** function key. The copied filter will appear on the Row 1 Filters screen in the number 1 position. The 'F1' function key is the only function key that is used in the program and its only purpose is to copy a filter so you can modify it without having to start from scratch.

```

Garland Technology P1GCCFE

Row 1 Filters  ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name                Ports                Count
-> 1: Case 432A          [ io |unav|unav|unav]  0
   2: Case 432A          [ io |unav|unav|unav]

u:cursor up  d:cursor down  v:view         c:clear count
a:add        e:edit       i:insert       x:delete
t:filter up  g:filter down  r:reset       h:help
0:exit      ***s:SAVE AND APPLY FILTERS***
Select: █
  
```

**Figure 56:** Row 1 Filters screen with new filter in 1<sup>st</sup> position

Now we can edit the new filter by **pressing 'e'**. Next, we want to create a new name for the filter. In this case, we want to add to the current name 'case 432A'. We will add '**dmac**' to the end of the current name. Press **<enter>** to save the new name on the name line of the screen.

```

Edit filter:
1.Name                : Case 432A
2.Ports               : [   |unav|unav|unav]
3.Counter Used        : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             :
0:Exit
Enter menu selection: █
  
```

**Figure 57:** New Filter Name 'case 432A dmac'

Next, we want to set up a filter for the '**destination MAC address**' so we will **press '5'**.



```

Edit filter:
1.Name                : Case 432A dmac
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID            :
7.Layer 3            :
0:Exit
Enter menu selection:5

Filter on DESTINATION mac address?[N]:
  
```

**Figure 58:** Filter on destination MAC address

The program will add the line **‘filter on DESTINATION mac address? [N]:’** at the bottom of the menu. **Press ‘y’** to add the address.

**Note:** The name of the filter is for User’s convenience only and does not affect the operation. So, multiple filters with the same name are allowed.

```

Edit filter:
1.Name                : Case 432A dmac
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID            :
7.Layer 3            :
0:Exit
Enter menu selection:5

filter on DESTINATION mac address?[N]:y
      Enter DESTINATION mac address(hex):
  
```

**Figure 59:** Enter the destination MAC address (in hex)

The program will add a second line to the bottom of the screen **‘Enter DESTINATION MAC address? (hex).** At this point, the controller expects the user to enter 6 hex numbers. The **‘:’** delimiting colons are added automatically for convenience. Hex numbers expected are two digits each with the digits being 0-9 or a-f. So, we will enter **‘c’, ‘8’, ‘2’, ‘0’**. Now if we enter **‘g’** instead of **‘f’** the program will alert the user by posting a warning message. For example, **pressing ‘g’** will warn of an **INVALID CHARACTER** but not allow the character to be entered.

```

Edit filter:
1.Name                : Case 432A dmac
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID            :
7.Layer 3            :
0:Exit
Enter menu selection:5

filter on DESTINATION mac address?[N]:y
!INVALID CHARACTER! Enter DESTINATION mac address(hex): c:20:

```

**Figure 60:** Edit Filter screen showing INVALID CHARACTER entered

Now we will enter the remainder of the Destination MAC address, ‘f’, ‘1’, ‘5’, ‘7’, ‘3’, ‘a’, ‘4’, ‘2’ and if the numbers correctly are entered correctly, the program will announce that the a ‘valid MAC address’ was entered. **Press ‘ENTER’** to accept the MAC address.

```

Edit filter:
1.Name                : Case 432A dmac
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID            :
7.Layer 3            :
0:Exit
Enter menu selection:5

filter on DESTINATION mac address?[N]:y
valid mac address Enter DESTINATION mac address(hex): c:20:f1:57:3a:42

```

**Figure 61:** The Destination MAC is entered

```

Edit filter:
1.Name                : Case 432A dmac
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address : c8:20:f1:57:3a:42
6.VLAN ID            :
7.Layer 3            :
0:Exit
Enter menu selection:

```

**Figure 62:** The Destination MAC is entered

Please note that entering the SOURCE MAC address is operationally the same as entering the DESTINATION MAC address. If a SOURCE MAC address is

entered at this point, the filter would require a packet to match both criteria before passing that packet. **Press '0'** to return to the **'Row 1 Filter'** screen.

```

Garland Technology P1GCCFE

Row 1 Filters ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# Name          Ports          Count
-> 1: Case 432A dmac [ io |unav|unav|unav] 0
   2: Case 432A   [ io |unav|unav|unav]

u:cursor up  d:cursor down  v:view      c:clear count
a:add        e:edit         i:insert    x:delete
t:filter up  g:filter down  r:reset    h:help
0:exit      ***s:SAVE AND APPLY FILTERS***
Select: █
  
```

**Figure 63:** The Back to the Row 1 Filters Screen

Back to the Row 1 Filter screen and we will **press 's'** to save and apply the filters as we did before.

```

Garland Technology P1GCCFE

Row 1 Filters

# Name          Ports          Count
-> 1: Case 432A   [ io |unav|unav|unav] 0
   2: Case 432A   [ io |unav|unav|unav] 0

u:cursor up  d:cursor down  v:view      c:clear count
a:add        e:edit         i:insert    x:delete
t:filter up  g:filter down  r:reset    h:help
0:exit
select: █
  
```

**Figure 64:** The case 432A dmac is saved

Now we want to create a filter 'abc'. This filter will look for packets with a VLAN 768 from port A on slot 1 and send them to port C on slot 1. So, we will **press 'a'** to add the new filter. Remember how we have done it before.

```

Edit filter:
1.Name          : abc
2.Ports         : [   |unav|unav|unav]
3.Counter Used  : YES
4.Source MAC address :
5.Destination MAC address :
6.VLAN ID       :
7.Layer 3       :
0:Exit
Enter menu selection: █
  
```

**Figure 65:** The new Filter has a name

Next tell the filter what the ingress and egress ports are so press 2 to get to the **'Select Ingress Port (s)'** Menu

**Press '1'** to select port **'A1'** this will cause an asterisk **'\*'** to be placed in the A1 brackets and place an **'i'** port A position of map line. Now we will set up the egress port. **Pressing 'e'** will bring up the **'Egress port(s)'** screen

<pre>TAP Control P1GCCFE  Select Ingress Port(s)  map: [i    unav unav unav]  Slot 1 - P1GCCFE: 1: A1 [*] 2: B1 [ ] e: Egress Ports Menu 0:exit █</pre>	<pre>TAP Control P1GCCFE  Select Egress Port(s)  map: [i o  unav unav unav]  Slot 1 - P1GCCFE: 1: C1 [*] 2: D1 [ ] i: Ingress Ports Menu 0:exit █</pre>
---	---

**Figure 66:** Select Ingress Port(s) Screen and **Figure 67:** Ingress port(s) selected

**Press '1'** to select port **'C1'**. This will place an asterisk (\*) in **C1** brackets and an **'o'** in port **'C'** position of the map line. **Press '0'** to return to the **'Edit filter screen'** figure '71'. The filter has a name and the ingress and egress ports are defined.

```

Edit filter:
1.Name                : abc
2.Ports                : [i o |unav|unav|unav]
3.Counter Used        : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID              :
7.Layer 3              :
0:Exit
Enter menu selection: █
```

**Figure 68:** Ingress and egress ports defined

Now we want to define the VLAN ID so **press '6'**. The program will enter a line at the bottom **"filter on VLAN ID [N]:"**, **press 'y'**. A second line will appear asking for the VLAN ID in decimal form. Enter '7', '6', '8' for the VLAN ID then press **'ENTER'** next press '0' to return to the Row 1 Filters Screen.

```

Edit filter:
1.Name                : abc
2.Ports               : [i o |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             :
0:Exit
Enter menu selection:6

filter on vlan id?[N]:y
Enter vlan id(decimal):768
  
```

**Figure 69: Creating VLAN ID**

Press 's' to save.

```

Garland Technology P1GCCFE

Row 1 Filters  ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

   #: Name                Ports                Count
   1: Case 432A dmac      [i o |unav|unav|unav]  0
   2: Case 432A          [i o |unav|unav|unav]
->  3: abc                [i o |unav|unav|unav]
u:cursor up  d:cursor down  v:view        c:clear count
a:add        e:edit      i:insert      x:delete
t:filter up  g:filter down r:reset     h:help
0:exit      ***s:SAVE AND APPLY FILTERS***
Select:
  
```

**Figure 70: VLAN ID created**

Next, we want to move the cursor up from filter 3 to filter 2 so we can move the filter case 432A up to the first position. Press 'u' to move the cursor up one position

```

Garland Technology P1GCCFE

Row 1 Filters

   #: Name                Ports                Count
   1: Case 432A dmac      [i o |unav|unav|unav]  0
->  2: Case 432A          [i o |unav|unav|unav]
   3: abc                [i o |unav|unav|unav]
u:cursor up  d:cursor down  v:view        c:clear count
a:add        e:edit      i:insert      x:delete
t:filter up  g:filter down r:reset     h:help
0:exit
Select:
  
```

**Figure 71: Filter case 432A is now in first position**

Press 't' to move the filter 'case 432A' up one position.

Press 's' to save the Row 1 Filters screen

```

Garland Technology P1GCCFE

Row 1 Filters

# : Name                Ports                Count
1 : Case 432A           [ io |unav|unav|unav] 0
-> 2 : Case 432A dmac    [ io |unav|unav|unav]
3 : abc                 [i o |unav|unav|unav]
u:cursor up  d:cursor down  v:view          c:clear count
a:add        e:edit         i:insert        x:delete
t:filter up  g:filter down  r:reset        h:help
0:exit
Select: █
  
```

Figure 72: Filter case 432A is now in first position

### 7.2.2. Layer 3 Filter Set up

Layer 3 filtering can target all IP messages or all non-IP messages. When IP is selected, the other layer 3 filter fields appear on the menu, these are source IP address, destination IP address, and DSCP. These may be used in any combination with each other or any other filter if IP messaging has been selected.

Press 'a' to bring up 'Edit Filter Screen'

```

Edit filter:
1.Name                : src IP fltA
2.Ports               : [i o|unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             :
0:Exit
Enter menu selection: █
  
```

Figure 73: New filter src IP fltA

Using the menu system as previously described, we will create a filter named 'src IP fltA'. This filter will filter on packets with source IP address 192.168.1.102. We now press '7' then 'i'. The Edit Filter menu changes. Press '8' then enter the IP address 192.168.1.102. The program will enter the source IP mask and provides the opportunity to edit it if necessary. Then press <enter>.

```

Edit filter:
1.Name                : src IP fltA
2.Ports               : [i o|unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             : IP
8.Source IP address   : 192.168.1.102 mask 255.255.255.255
9.Destination IP address :
a.DSCP                :
b.Layer 4             :
0:Exit
Enter menu selection:
  
```

**Figure 74:** The source IP address and mask is set

```

Garland Technology P1GCCFE

Row 1 Filters  ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

#  Name          Ports          Count
-> 1: src IP fltA [i o|unav|unav|unav] 0
   2: Case 432A dmac [io |unav|unav|unav] 0
   3: Case 432A  [io |unav|unav|unav] 0
   4: abc        [i o |unav|unav|unav] 0

u:cursor up   d:cursor down  v:view         c:clear count
a:add         e:edit         i:insert       x:delete
t:filter up   g:filter down  r:reset        h:help
0:exit  ***s:SAVE AND APPLY FILTERS***
Select:
  
```

**Figure 75:** Save the source IP filter

Next move Filter '4' up to the #1 position. Press 's' to save the Source IP Filter 'src IP fltA'.

Next, we will create another layer 3 filter named 'DSCP=21'. Press 'a' to add the new filter. Press '1' to name it 'DSCP=21' and press <enter>. Next press '2' to set up the ports. Press '1' to select ingress port 'a1' next press 'e' to bring up the Egress port screen then press '1' to select egress port 'c1'

```

Edit filter:
1.Name                : DSCP=21
2.Ports               : [  |  |  |i o ]
3.Counter used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             : IP
8.Source IP address   :
9.Destination IP address :
a.DSCP                : 21
b.Layer 4             :
0:Exit
Enter menu selection:
  
```

**Figure 76:** DSCP=21 is named and set to be defined

Next press **'7'** to set up the Layer 3 DSCP parameters, press **'a'** to define the DSCP value. Press **'21'** <enter> to enter 21 on line 'a'. Filter DSCP=21 is now complete.

```

Garland Technology  P1GCCFE

Row 1 Filters      ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

  #: Name          Ports          Count
  1: src IP fltA   [i o|unav|unav|unav]  0
  2: Case 432A     [ io |unav|unav|unav]  0
  3: Case 432A dmac [ io |unav|unav|unav]  0
  4: abc           [i o |unav|unav|unav]  0
-> 5: DSCP=21      [i o |unav|unav|unav]  0

u:cursor up  d:cursor down  v:view      c:clear count
a:add        e:edit         i:insert    x:delete
t:filter up  g:filter down  r:reset    h:help
0:exit      *** s:SAVE AND APPLY FILTERS ***
select:
  
```

Figure 77: Save the DSCP=21 filter

Filter DSCP 21 is complete. Press **'s'** to save.

```

Garland Technology  P1GCCFE

Row 1 Filters

  #: Name          Ports          Count
-> 1: src IP fltA   [i o|unav|unav|unav]  0
  2: Case 432A     [ io |unav|unav|unav]  0
  3: Case 432A dmac [ io |unav|unav|unav]  0
  4: abc           [i o |unav|unav|unav]  0
  5: DSCP=21      [i o |unav|unav|unav]  0

u:cursor up  d:cursor down  v:view      c:clear count
a:add        e:edit         i:insert    x:delete
t:filter up  g:filter down  r:reset    h:help
0:exit
select:
  
```

Figure 78: Filter DSCP=21 is saved

Press **'0'** to return to the Row 1 Filters screen. Next press **'a'** to add a **layer 4** filter.

### 7.2.3. Layer 4 Filter Set up

Layer 4 filtering captures protocols riding on layer 3 IP. Specifically, the IP port number, 0-255, which identifies the Layer 4 protocol in the packet. Two of the protocols, TCP=6, and UDP=17, contain source and destination ports which can also be used as keys for filters.

ICMP is identified as IP protocol=1. Using previously explained commands, we create a new filter named 'ICMP', B2->C3...



Next, we will create layer 4 filter named 'ICMP'. Press 'a' to begin the process to add the new filter.

**Press '1'** to name it 'ICMP' and **press <enter>**.

**Press '2'** to set up the ports. **Press '4'** to select ingress port 'b1'

**Press 'e'** to bring up the Egress port screen then **press '5'** to select egress port 'c1'

**Press '0'** to return to the 'Edit Filter Screen'.

**Press '7'** to select the Layer 3 function then **press 'i'** to select 'IP' then **press 'b'** to select Layer 4 this will bring up more selections at the bottom of the screen.

**Press 'h'** and enter '1' so we can filter on 'ICMP IP protocol =1'. IP protocol can be a decimal number 0-255.

```

Edit filter:
1.Name                : ICMP
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID            :
7.Layer 3            : IP
8.Source IP address   :
9.Destination IP address :
a.DSCP               :
b.Layer 4            :
0:Exit
Enter menu selection:b

filter on layer 4(IP protocol)?[N]
t.tcp:
u.udp
h.other
any other key.no change
ip protocol[0]:
  
```

**Figure 79:** Filter ICMP filter is almost done

```

Edit filter:
1.Name                : ICMP
2.Ports               : [ io |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID            :
7.Layer 3            : IP
8.Source IP address   :
9.Destination IP address :
a.DSCP               :
b.Layer 4            : 1
0:Exit
Enter menu selection:
  
```

**Figure 80:** Filter ICMP filter is complete

**Press '0'** to return to the Row 1 filter screen.

```

Garland Technology PlGCCFE
Row 1 Filters    ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

  #: Name                Ports                Count
  1: src IP fltA        [i o|unav|unav|unav]  0
  2: Case 432A          [ io |unav|unav|unav]  0
  3: Case 432A dmac     [ io |unav|unav|unav]  0
  4: abc                [i o |unav|unav|unav]  0
  5: DSCP=21           [i o |unav|unav|unav]  0
-> 6: ICMP              [ io |unav|unav|unav]  0

u:cursor up  d:cursor down  v:view      c:clear count
a:add        e:edit        i:insert    x:delete
t:filter up  g:filter down  r:reset    h:help
0:exit      *** s:SAVE AND APPLY FILTERS ***
select: █
  
```

**Figure 81:** Filter ICMP filter is ready to be saved

**Press 's'** to save the filter.

```

Garland Technology PlGCCFE
Row 1 Filters

  #: Name                Ports                Count
  1: src IP fltA        [i o|unav|unav|unav]  0
  2: Case 432A          [ io |unav|unav|unav]  0
  3: Case 432A dmac     [ io |unav|unav|unav]  0
  4: abc                [i o |unav|unav|unav]  0
  5: DSCP=21           [i o |unav|unav|unav]  0
-> 6: ICMP              [ io |unav|unav|unav]  0

u:cursor up  d:cursor down  v:view      c:clear count
a:add        e:edit        i:insert    x:delete
t:filter up  g:filter down  r:reset    h:help
0:exit
select: █
  
```

**Figure 82:** Now have 6 filters completed

We will add one more filter to our set of examples. We will create a filter named **'Email send'** capture filter and send them to a monitor port.

So, for the last filter, we will create a layer 4 filter named **'email send'**.

**Press 'a'** to add the new filter. **Press '1'** to name it **'email send'** and **press <enter>**.

Next **press '2'** to set up the ingress port.

**Press '1'** to select ingress port **'a1'**

Next **press 'e'** to bring up the Egress port screen then **press '1'** to select egress port **'c1'**.

Press **'0'** to return to the **'Edit Filter'** screen.

Press **'7'** to display the Layer 3 functions, then press **'i'**, to select **'IP'** then press **'b'** to select Layer 4.

A question will display at the bottom of the screen asking if you want to filter on layer 4 (IP protocol) press **'y'**. This will bring up more selections at the bottom of the screen. We will press **'t'** to select **'tcp'**.

Now we want to define the **DESTINATION port**, press **'d'** and the program will add a new question line to the bottom of the menu – **'filter on DESTINATION port? [N]'**.

Press **'y'** and the program will add another line to allow the entry of the Destination port. Enter the number **'587'**.

```

Edit filter:
1.Name                : email send
2.Ports               : [i o |unav|unav|unav]
3.Counter Used       : YES
4.Source MAC address  :
5.Destination MAC address :
6.VLAN ID             :
7.Layer 3             : IP
8.Source IP address   :
9.Destination IP address :
a.DSCP                :
b.Layer 4             : 6 (TCP)
c:Source Port         :
d:Destination Port    : 587
0:Exit
Enter menu selection: █
  
```

**Figure 83:** The 'email send' is complete

Press **'0'** to return to the Row 1 Filters screen. The TCP source port, and UDP source and destination entries are similar.

```

TAP Control PIGCCFE
Row 1 Filters  ***FILTER CONFIGURATION NOT SAVED OR APPLIED***

# : Name                Ports                Count
1: src IP fltA         [i o|unav|unav|unav]  0
2: Case 432A           [i o|unav|unav|unav]  0
3: Case 432A dmac      [i o|unav|unav|unav]  0
4: abc                 [i o|unav|unav|unav]  0
5: DSCP=21            [i o|unav|unav|unav]  0
6: ICMP               [i o|unav|unav|unav]  0
-> 7: email send       [i o|unav|unav|unav]  0

u:cursor up      d:cursor down  v:view          c:clear count
a:add            e:edit         i:insert        x:delete
t:filter up      g:filter down  r:reset         h:help
0:exit          ***s:SAVE AND APPLY FILTERS***
select: █
  
```

**Figure 84:** The filters are ready to be saved

Always remember to **press 'S'** to save your work when you finish entering your filters or they won't be there when you try to use them.

```

TAP Control P1GCCFE

Row 1 Filters

# Name          Ports          Count
1: src IP fltA  [i o |unav|unav|unav]  0
2: Case 432A    [ i o |unav|unav|unav]  0
3: Case 432A dmac [ i o |unav|unav|unav]  0
4: abc          [i o |unav|unav|unav]  0
5: DSCP=21     [i o |unav|unav|unav]  0
6: ICMP        [ i o|unav|unav|unav]  0
-> 7: email send [i o |unav|unav|unav]  0

u:cursor up    d:cursor down  v:view         c:clear count
a:add          e:edit         i:insert       x:delete
t:filter up    g:filter down  r:reset       h:help
0:exit
select:
  
```

**Figure 85:** The 'email send' filter is now complete

**Press '0'** to return to the main menu.

```

Garland Technology P1GCCFE (Code Version: 1.0.48)

Main Menu

Select:

1. Change/View Module Configuration
2. Filtering
3. Username/Password
4. Settings
5. Upgrade
6. Users
0. Logout
Select:
  
```

**Figure 86:** Main Menu Screen

This concludes the demonstration of the various types of filters that can be set up to manage the traffic flow that will go out to the monitor ports.

You will find this product to be a big help to monitor all that is happening on your 1Gbps network.

## 8. Part Numbers and Descriptions

### 8.1. Portable TAPs with Filtering Feature

<b>P1GCCFE</b>	10/100/1000Mbps network Speed, Copper network ports to copper, aggregating, L2, L3 and L4 filtering monitor ports portable TAP.
<b>P1GCSFE</b>	Copper network ports to SFP, aggregating, L2, L3 and L4 filtering monitor ports portable TAP.
<b>P1GMCFE</b>	Multi-mode fiber network ports to copper, aggregating, L2, L3 and L4 filtering monitor ports portable TAP.
<b>P1GMSFE</b>	Multi-mode fiber network ports to SFP, aggregating, L2, L3 and L4 filtering monitor ports portable TAP.
<b>P1GSCFE</b>	Single-mode fiber network ports to Copper, aggregating, L2, L3 and L4 filtering monitor ports portable TAP.
<b>P1GSSFE</b>	Single-mode fiber network ports to SFP, Aggregating, L2, L3 and L4 Filtering monitor ports portable TAP. □

## 9. Technical Specifications

### P1GXXFE Filtering TAP Specifications

Model #	Network Speed	Media		Modes					Link Speed Synchronization
		Network	Monitor	Breakout	Aggregation	SPAN/Regen	Filtering	Bypass	
P1GCCFE	10/100/1000M	2 Copper-RJ-45	2 Copper-RJ-45	X	X	X	X	N/A	Yes
P1GCSFE	10/100/1000M	2 Copper-RJ-45	2 SFP Transceivers	X	X	X	X	N/A	Yes
P1GMCFE	1G	2 SX M/M, Passive LC Fiber	2 SFP	X	X	X	X	N/A	N/A
P1GMSFE	1G	2 SX M/M, Passive LC Fiber	2 SFP Transceivers	X	X	X	X	N/A	N/A
P1GSCFE	1G	2 LX S/M, Passive LC Fiber	2 SFP	X	X	X	X	N/A	N/A
P1GSSFE	1G	2 LX S/M, Passive LC Fiber	2 SFP Transceivers	X	X	X	X	N/A	N/A

## 10. Definitions and Help

SMF	Singlemode Fiber Network Ports
MMF	Multimode Fiber Network Ports
RJ-45	Copper Port
SFP	Transceiver Port – 1Gbps
LFP	Link Failure Propagation - LFP is used mostly for HA designed networks. When turned on, it can sense a network failure and reflect the failure to the adjacent port of the live network allowing the network's failover mechanism to switch over to the secondary network path. □
Reverse Bypass	Disables link on both live network ports if all inline appliances lose link or cannot pass traffic. Disabled by default.
Forced Bypass	Allows the In-line appliance to be bypassed whenever firmware or software upgrades need to be installed.

```

Select slot number to view/modify
Chassis serial number: 21870020103   Controller Serial Number: 2190020100

Power Supply 1: Up
# : Module Type
  Operating Mode (Current State)
-----
1: P1GCCBPE      2: Slot Empty    3: Slot Empty    4: Slot Empty

Press
1: Select Slot 1    2: Select Slot 2    3: Select Slot 3    4: Select Slot 4
0: Exit
  
```

Figure 87: Help Screen for the Filtering Menu

## 11. Console Cable for P1GxxFE Series Portable TAPs Serial Mgt port

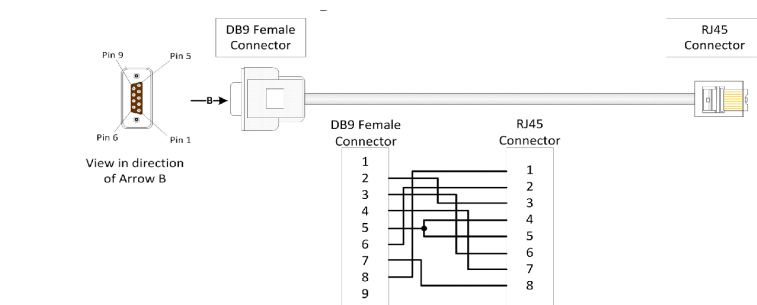


Figure 88: Serial Cable Pinout



**For questions, please contact Garland Technical Support at:**  
8 AM – 9 PM (CST) Monday – Friday (except for observed US Holidays)  
+1.716.242.8500 support@garlandtechnology.com

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