

---

---

# T1 E1 J1 Switch

---

---



 ***GL Communications Inc.***

818 West Diamond Avenue - Third Floor, Gaithersburg, MD 20878  
Phone: (301) 670-4784 Fax: (301) 670-9187 Email: [info@gl.com](mailto:info@gl.com)  
Website: <http://www.gl.com>

# T1/ E1 / J1 Switch

- The T1 E1 J1 Switch provides non-intrusive failsafe monitoring and intrusive test diagnostic capability for up to 8 full duplex T1, E1, and J1 lines.



# Key Features

- Replaces Physical Cabling Changes
- 19" Rack Mount Enclosure
- Handles 8 Full Duplex Lines
- Modes for Monitoring or Intrusive Testing
- USB controlled
- Local or Remote Software Controls
- Fail-Safe Mode for Power Failures

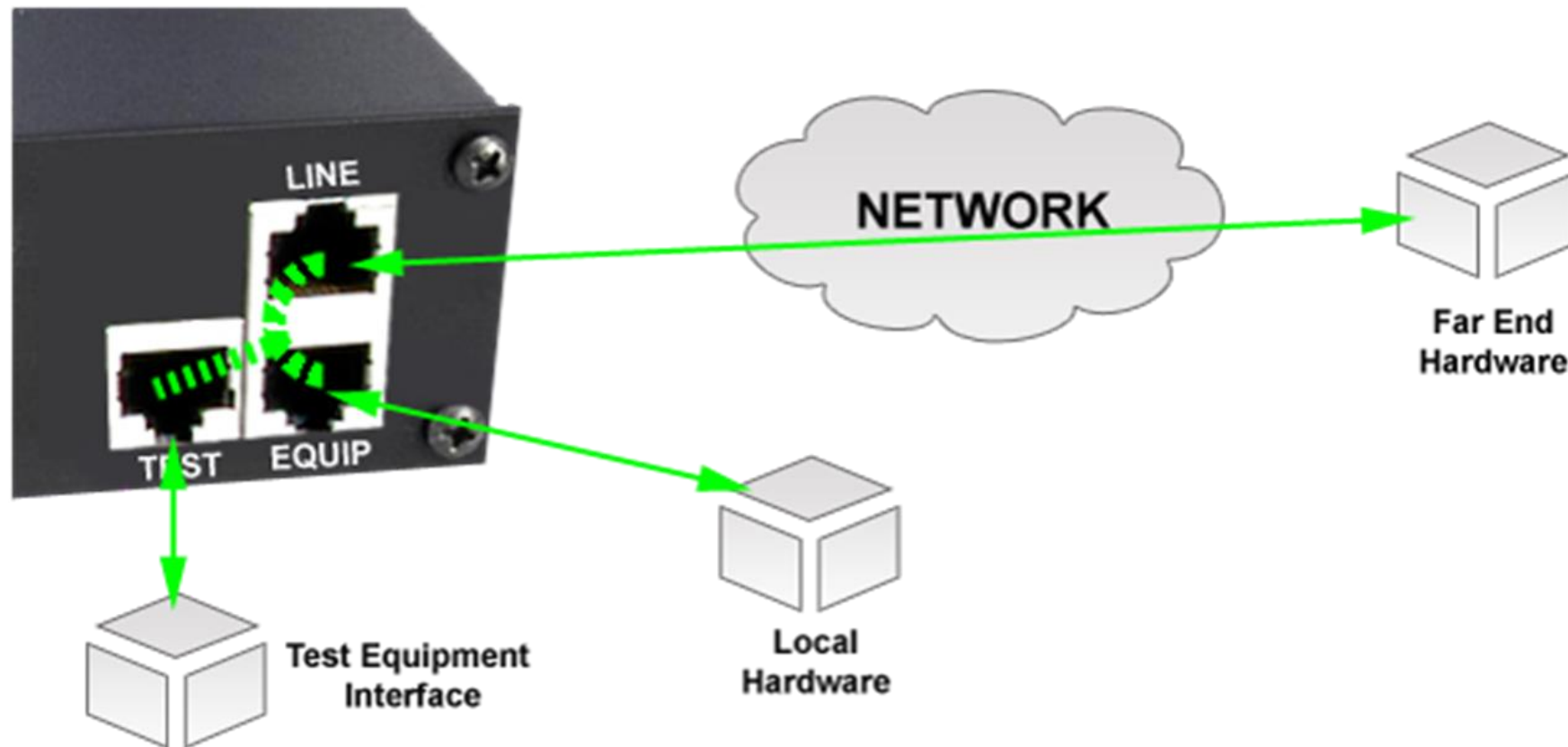
# T1 / E1 / J1 Switch Applications

- Automated testing environments
- Remote intrusive and non-intrusive test applications
- Monitoring and surveillance applications
- Protocol content monitoring
- Remote control switching of lines

# Cable Setup

The unit provides:

- Two RJ-48c connectors for a thru-mode connection for equipment and line connections
- One RJ-48c monitor connector for monitoring both directions of a full duplex high-speed line



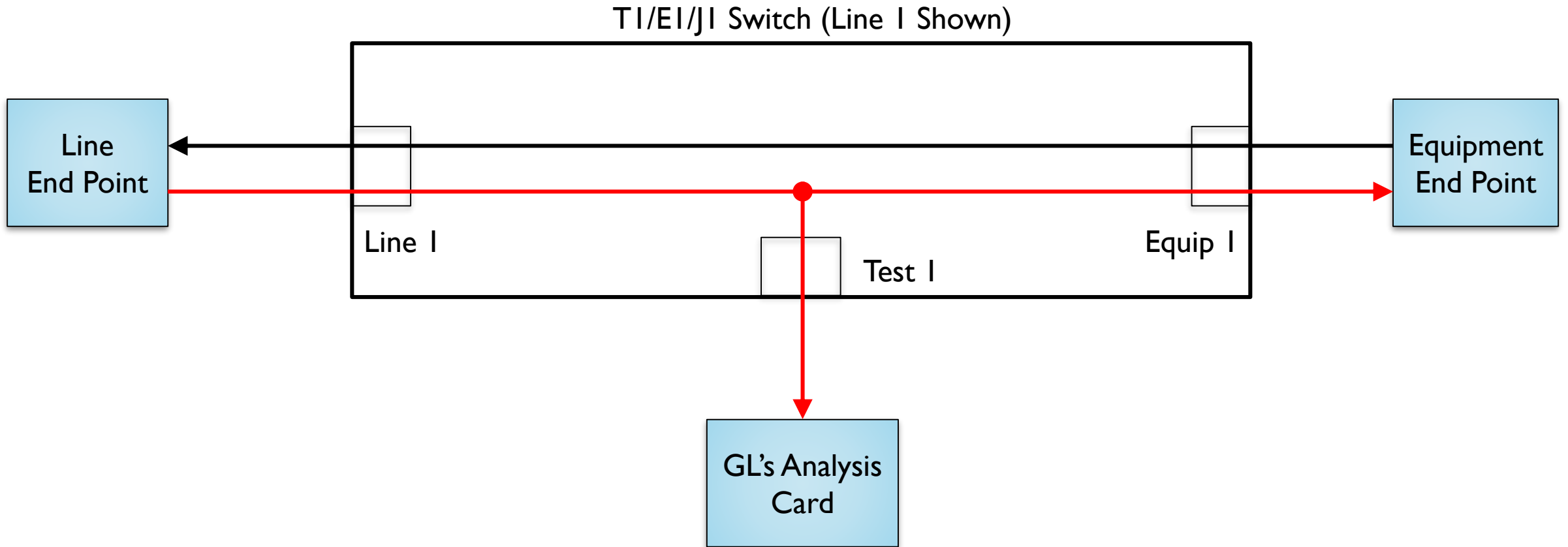
# Specifications

Physical Dimensions Size Weight	1U rack mount case — (L) 6" x (W) 17.67" x (H) 1.72" 5 Lbs or 2.2Kg
Physical Interfaces	<p>Front Panel</p> <ul style="list-style-type: none"><li>• 8 green LEDs which are used to indicate monitor</li><li>• 8 yellow LEDs which are used to indicate intrusive testing mode</li><li>• One additional LED to indicate power</li></ul> <p>Rear Panel</p> <ul style="list-style-type: none"><li>• Line</li><li>• 8 RJ48c connectors, one for each port which is used to connect to the network</li></ul> <p>Equipment</p> <ul style="list-style-type: none"><li>• 8 RJ48c connectors, one for each port, which is used to connect to the CSU, or other equipment installed</li></ul> <p>Test</p> <ul style="list-style-type: none"><li>• 8 RJ48c connectors, one for each port which is used to connect to a test device to monitor or test T1/E1/J1 lines</li></ul>

# Specifications

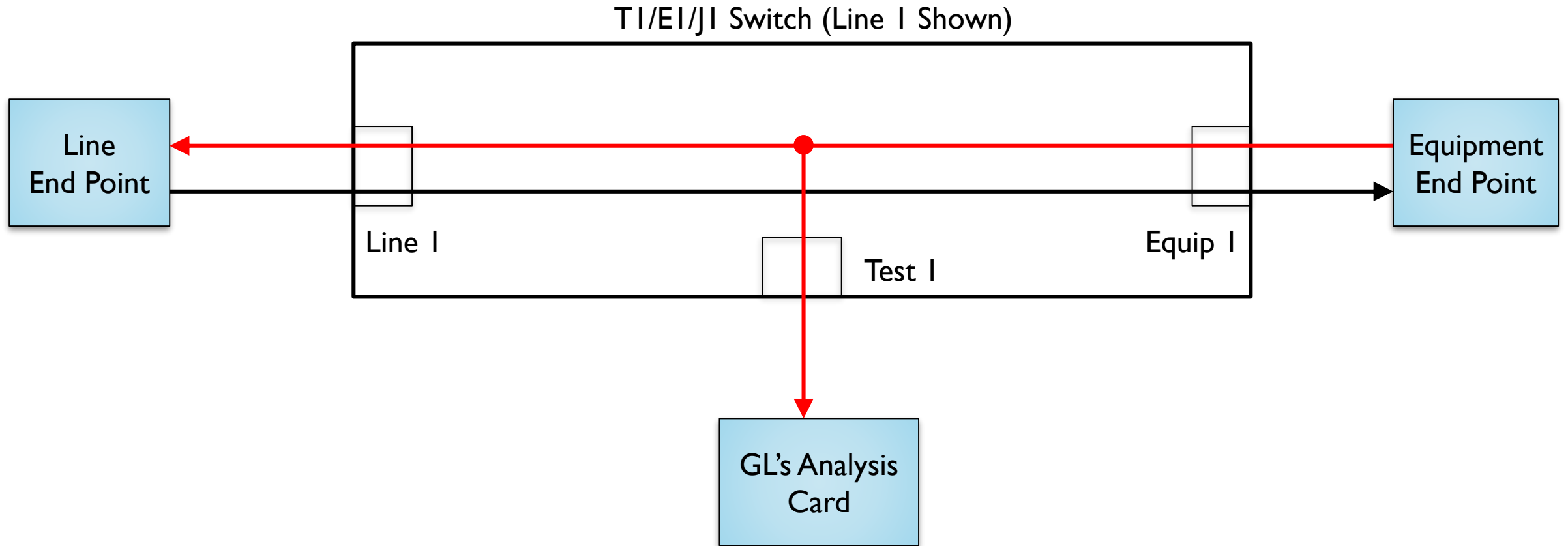
Physical Interfaces	<p><b>AC Power</b></p> <ul style="list-style-type: none"><li>• Has an AC receptacle to accommodate a three prong AC Plug.</li></ul> <p><b>USB Connector</b></p> <ul style="list-style-type: none"><li>• A TYPE B USB Connector used to interface to a USB 2.0 PC device.</li></ul>
Software Requirements	<ul style="list-style-type: none"><li>• TI/EI/JI Switch Software GUI</li><li>• GL's Windows Client/Server (WCS) Application</li></ul>
Power	<ul style="list-style-type: none"><li>• AC Power</li><li>• The AC power will accept 110-240VAC at 50/60 Hz with a 5x20mm slow blow .5A fuse.</li><li>• USB Power – The USB requires a 2.0 USB device connection, which will draw less than 500mA</li></ul>

# Basic Modes Line Monitoring

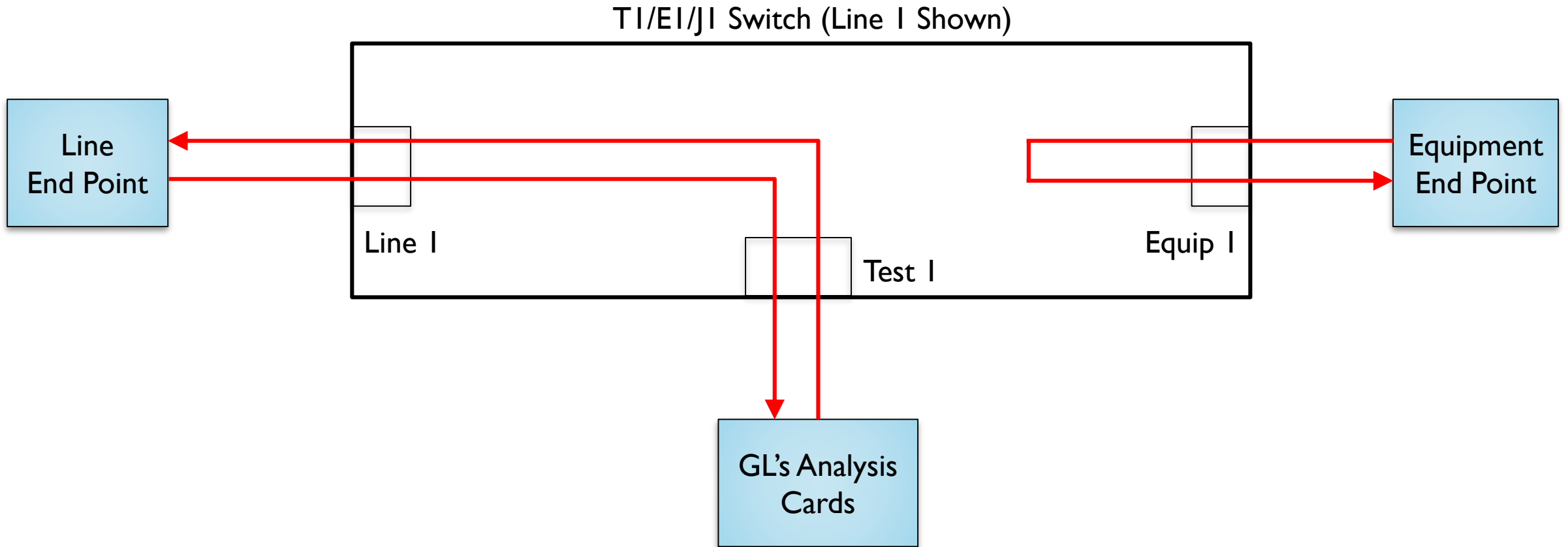




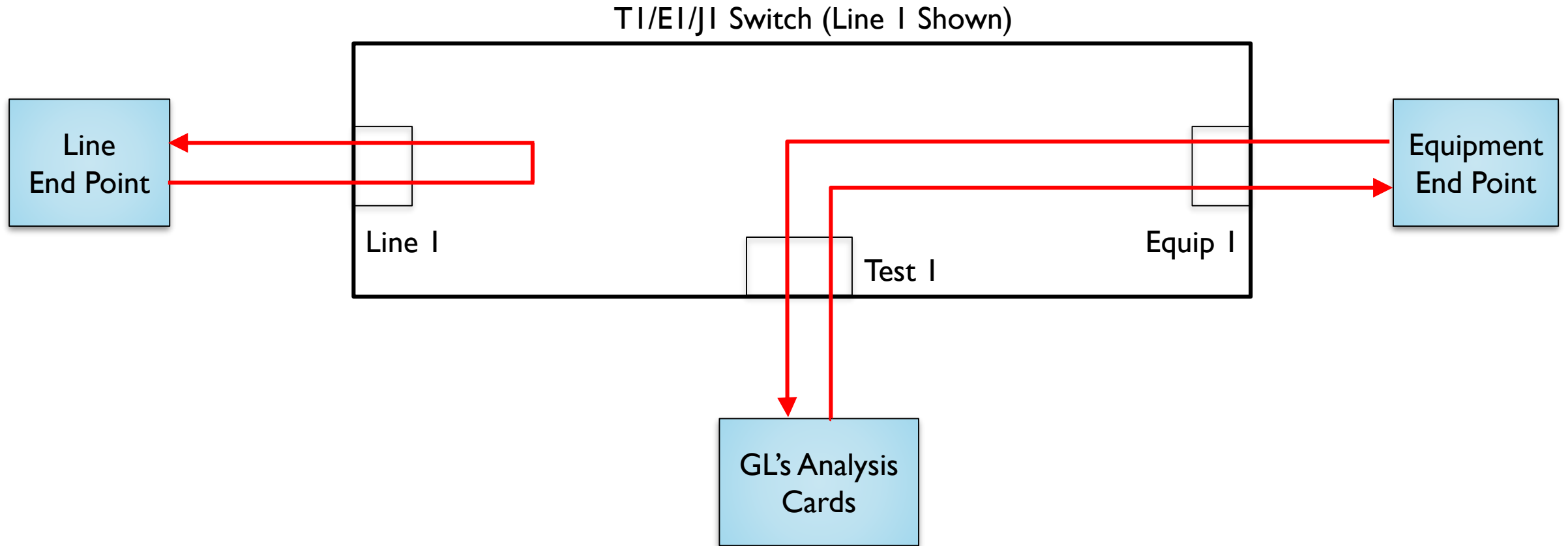
# Basic Modes Equipment Monitoring



# Basic Modes Line Testing (Intrusive)

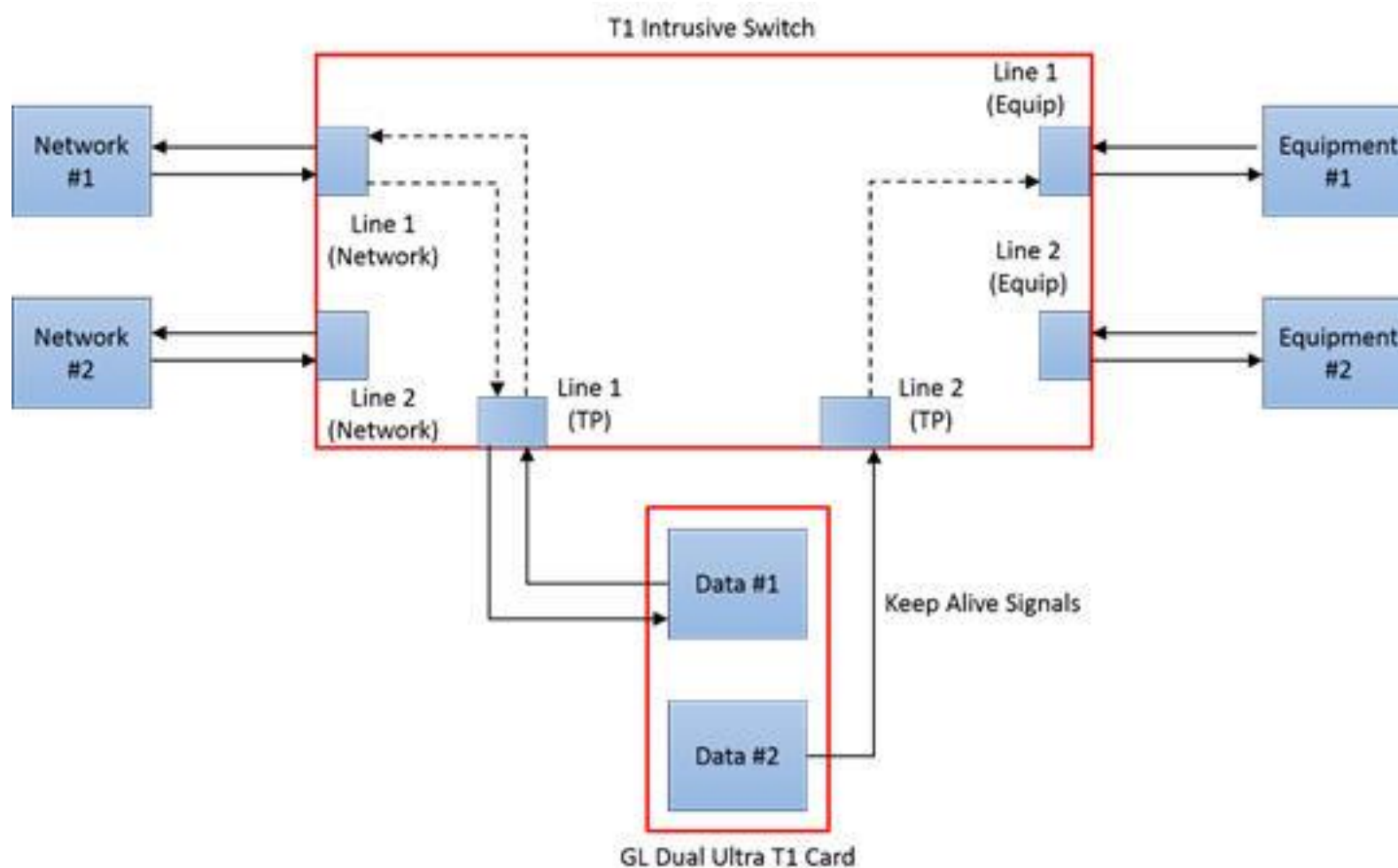


# Basic Modes Equipment Testing (Intrusive)



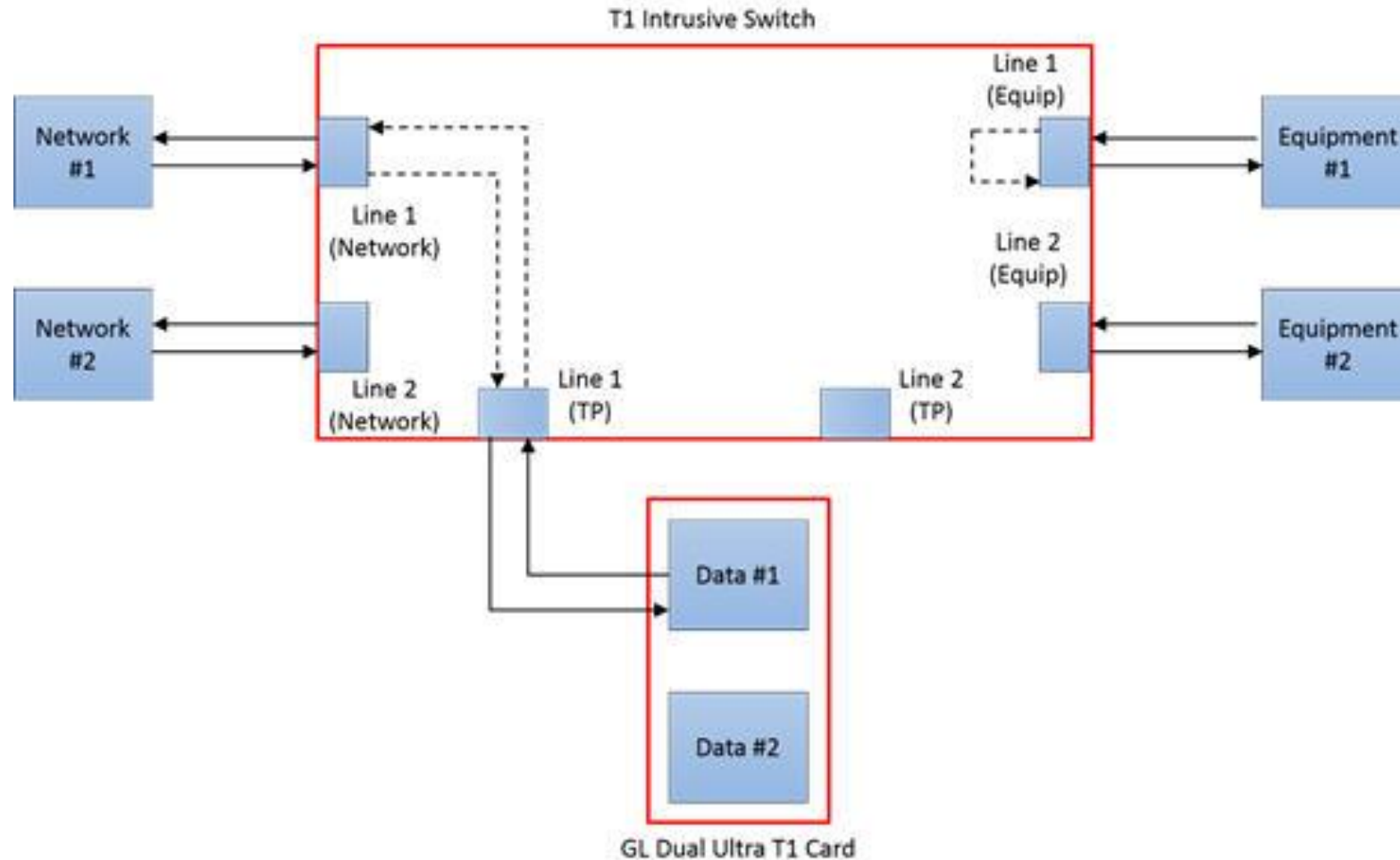
# Line Testing with Keep Alive (Shared)

- Allows to test intrusively in the direction of Line. The secondary test cards provides Keep Alive signals indicating the line is active



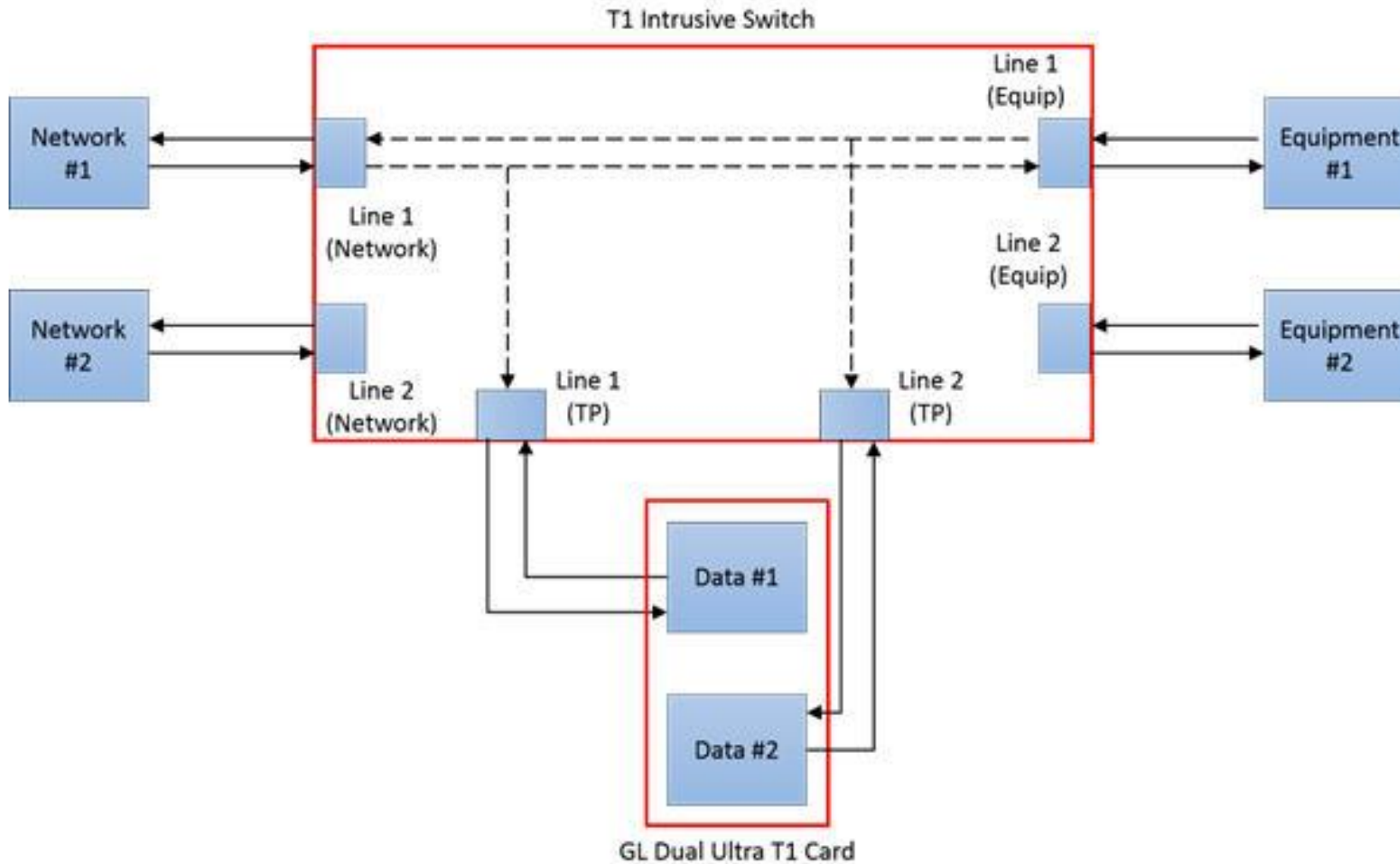
# Line Testing with Equipment Loopback

- Allows to test intrusively in the direction of Line. The Equipment side is looped back within the switch



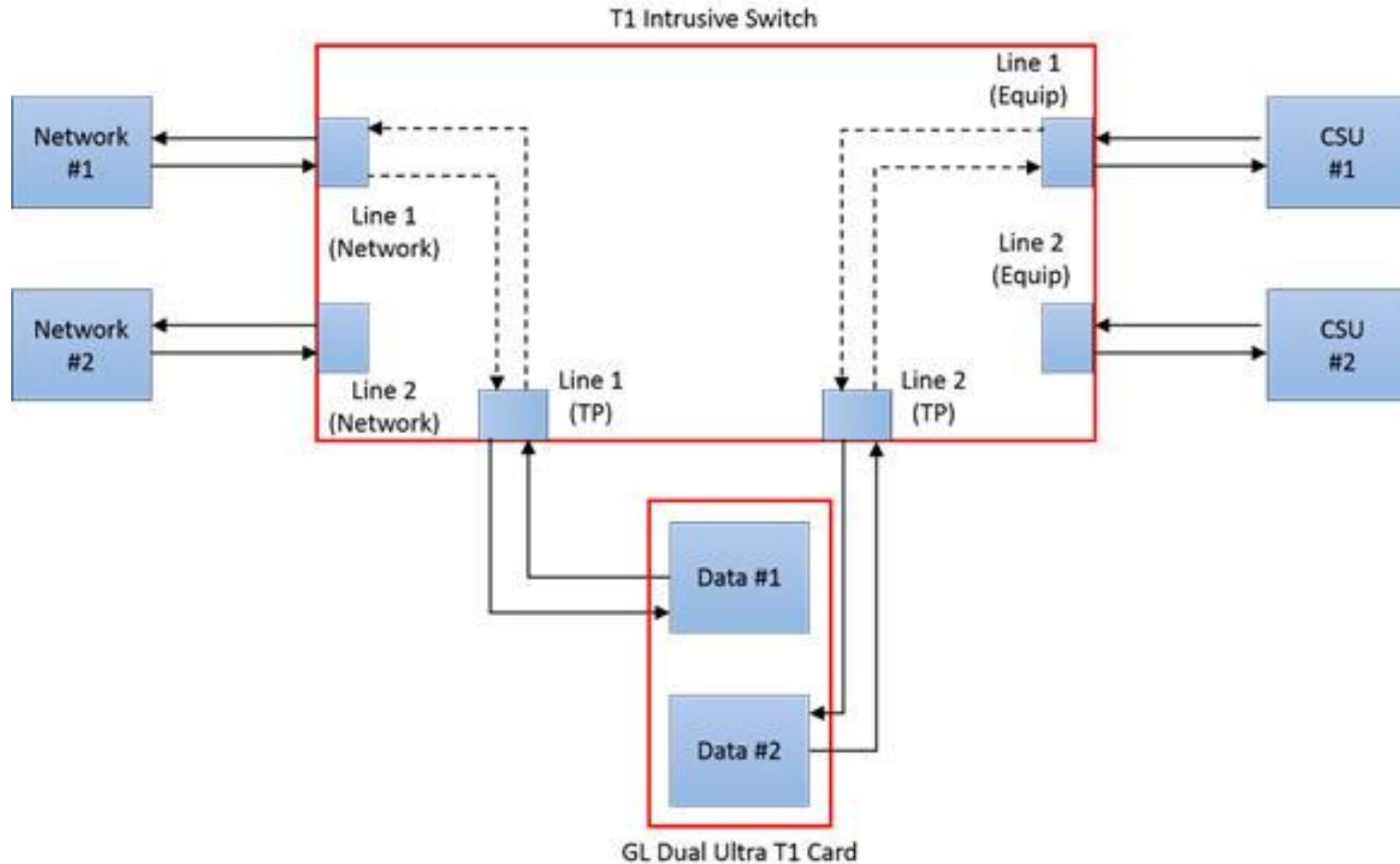
# Dual Direction Monitoring

- Allows to monitor the incoming signals from the Line and the Equipment non-intrusively.



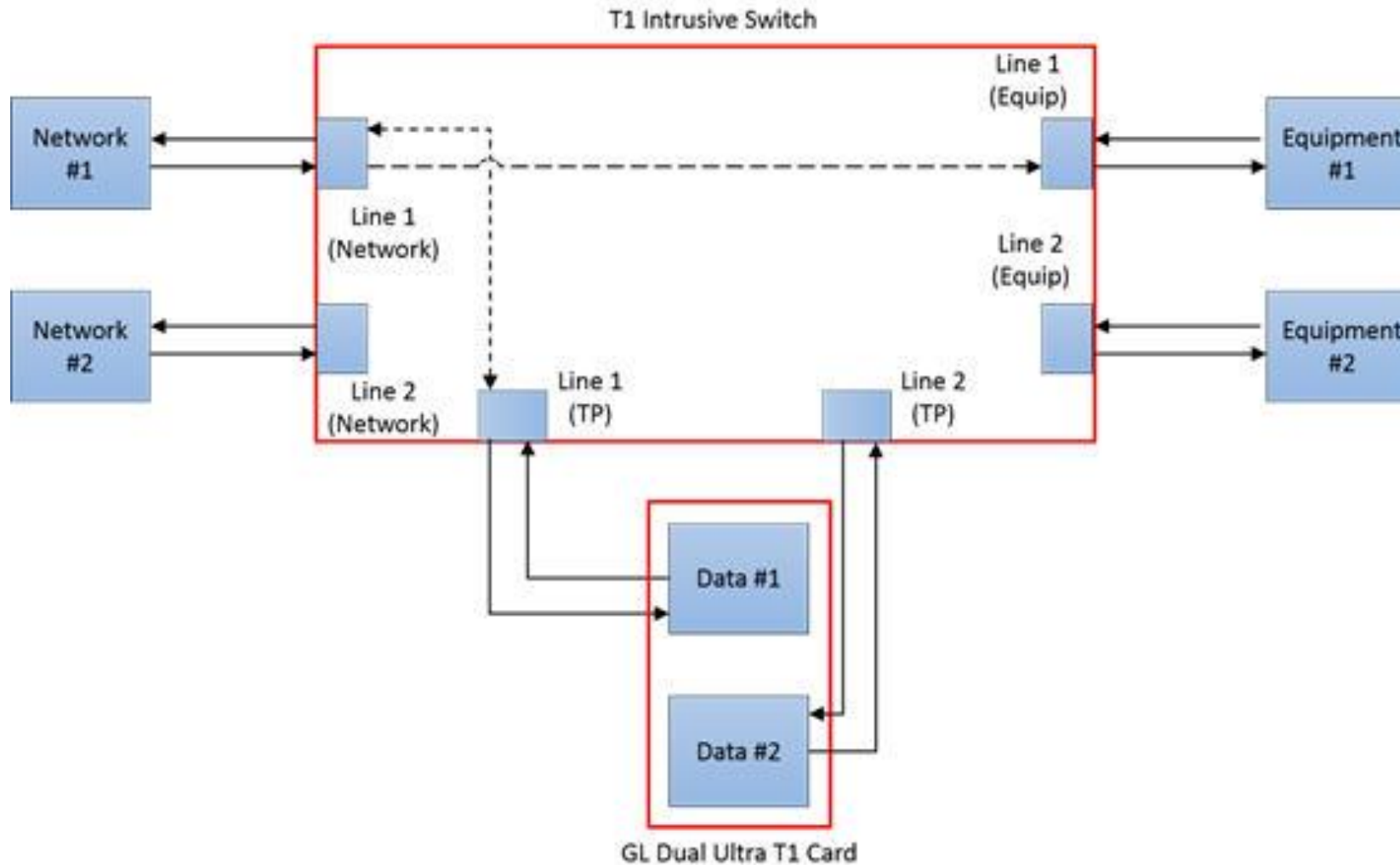
# Dual Direction Testing

- Allows to test the incoming signals intrusively from the Line and the Equipment at the same time



# Monitor Line Loopback with Signal Thru

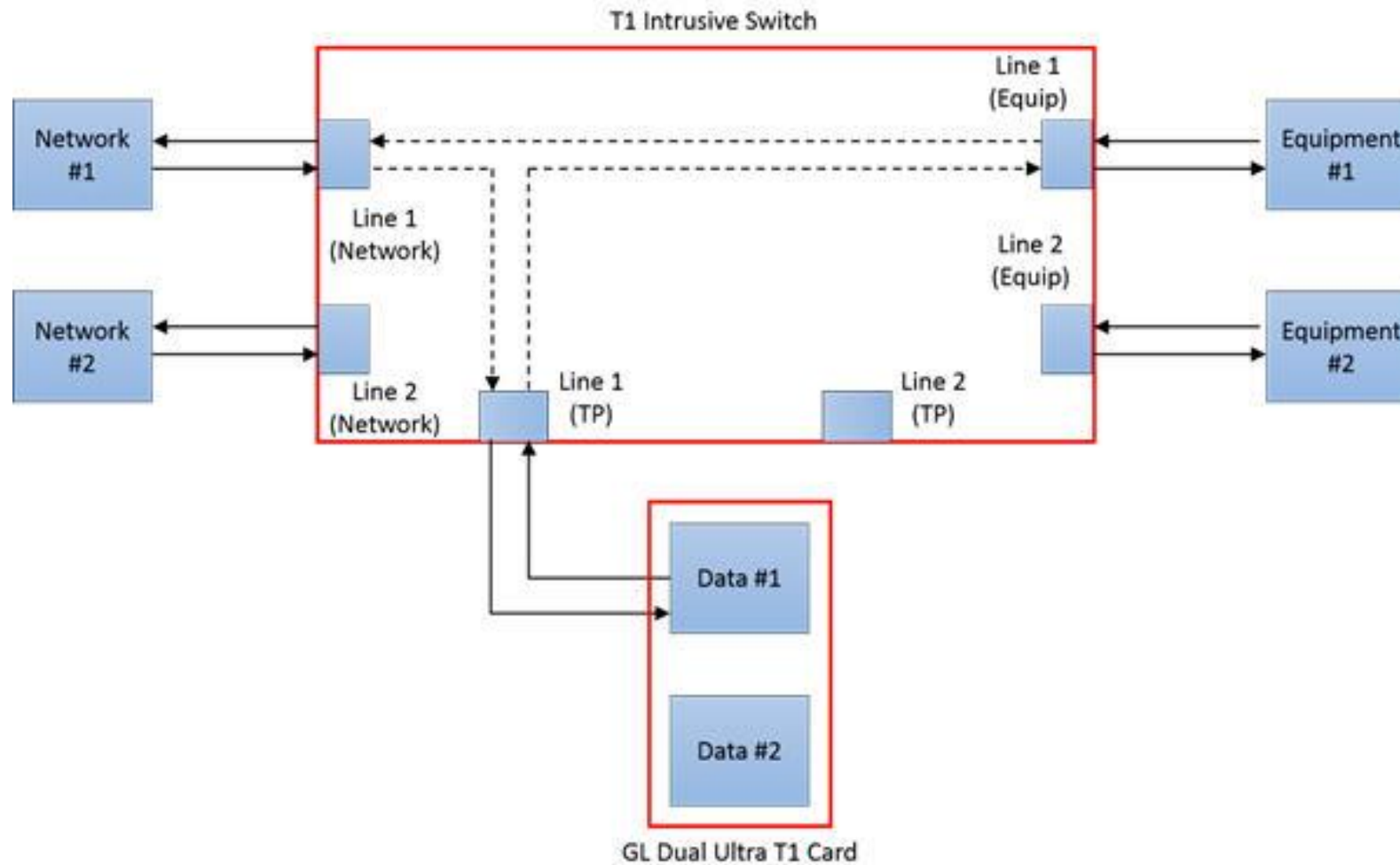
- Allows to loopback the Line signal within the Switch and allow the test port to monitor. The signal from the Line is passed thru to the Equipment.





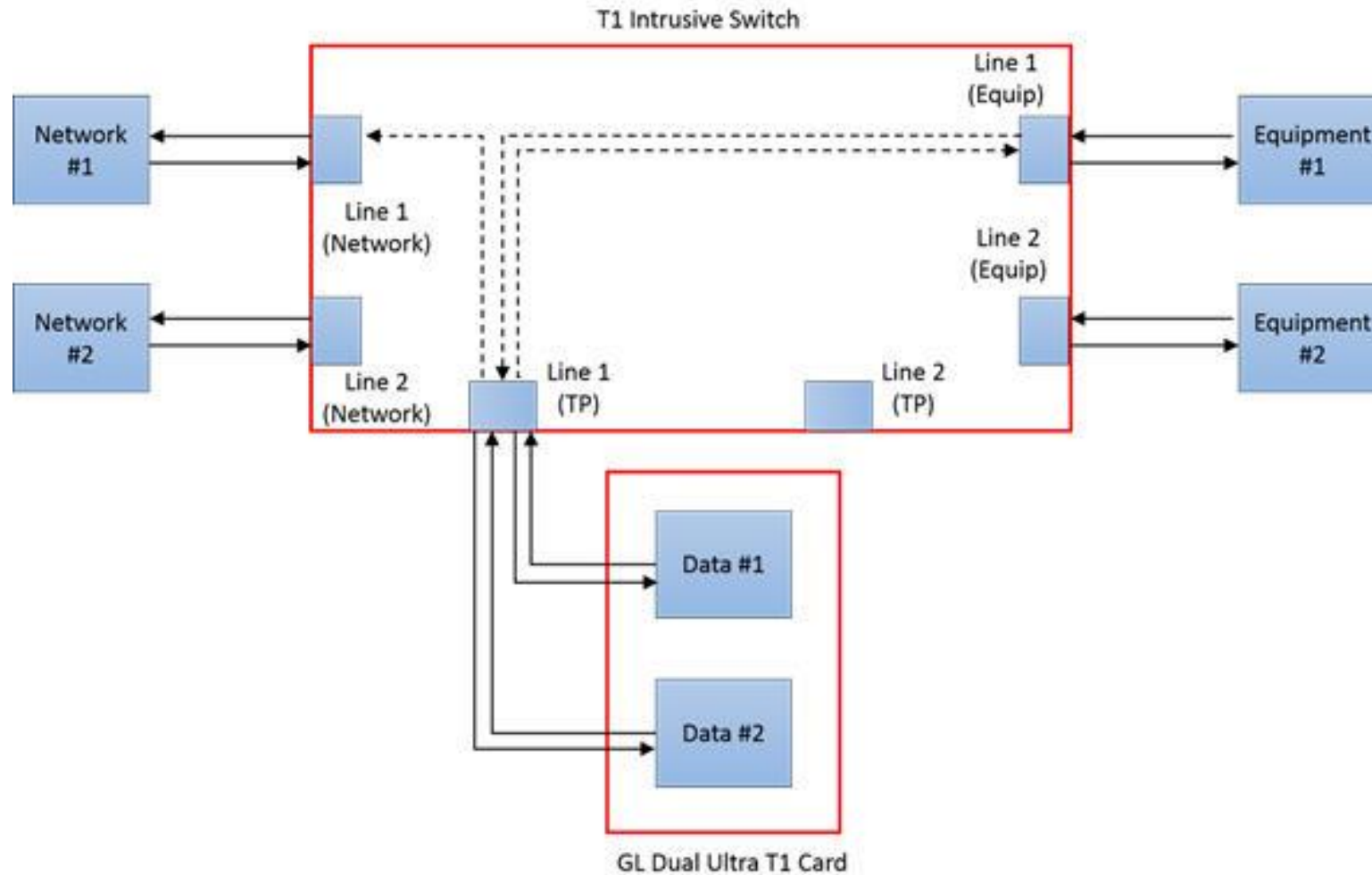
# Drop & Insert to Equipment

- It is an intrusive test allows to drop the received signal from the Line and insert the generated signal from the test card to the Equipment.



# Dual Cable Connection

- It is an intrusive test allows to test the Equipment/Line. The test card 2 provides Keep Alive signal towards the Line/Equipment, respectively.



# Software Controls (Local) MS Windows GUI

T1 E1 Switch Controller Ver: 0.004

Select A Switch Function You Want To Control

No:	Function Description
1	Thru Mode - No Monitor
2	Line Monitor
3	Equipment Monitor
4	Line Testing with Equipment Loopback
5	Equipment Testing with Line Loopback

This setting is a non-intrusive test designed to monitor the incoming signal from the Line. Note: The primary test card should be in Recovered clock and Monitor mode.

Device Details

Switch Selection: 1

Vendor ID: 0x15CC  
Product ID: 0x2098  
Manufacturer: GL Communications Inc  
Product Name: T1/E1 Switch  
Serial Number: 008777  
Firmware Revision Date: 01/12/06 (mm/dd/yy)

Command Center

Primary Port: Port 1

No:	Port	Byte Value
1	Port 1	0x4000

Global Settings

Command Delay: 250 ms

Auto Send On Function Selection

Send Command

Send User Defined Command

Command (HEX): [ ][ ][ ][ ]

Apply To All Ports

Send Command

Apply Function To All 8 Ports

Port Status

1	2	3	4	5	6	7	8	Power
0x4000	0x4000	0x4000	0x4000	0x4000	0x4000	0x4000	0x4000	0x4000
●	●	●	●	●	●	●	●	●

Continuous Refresh

Refresh

Close

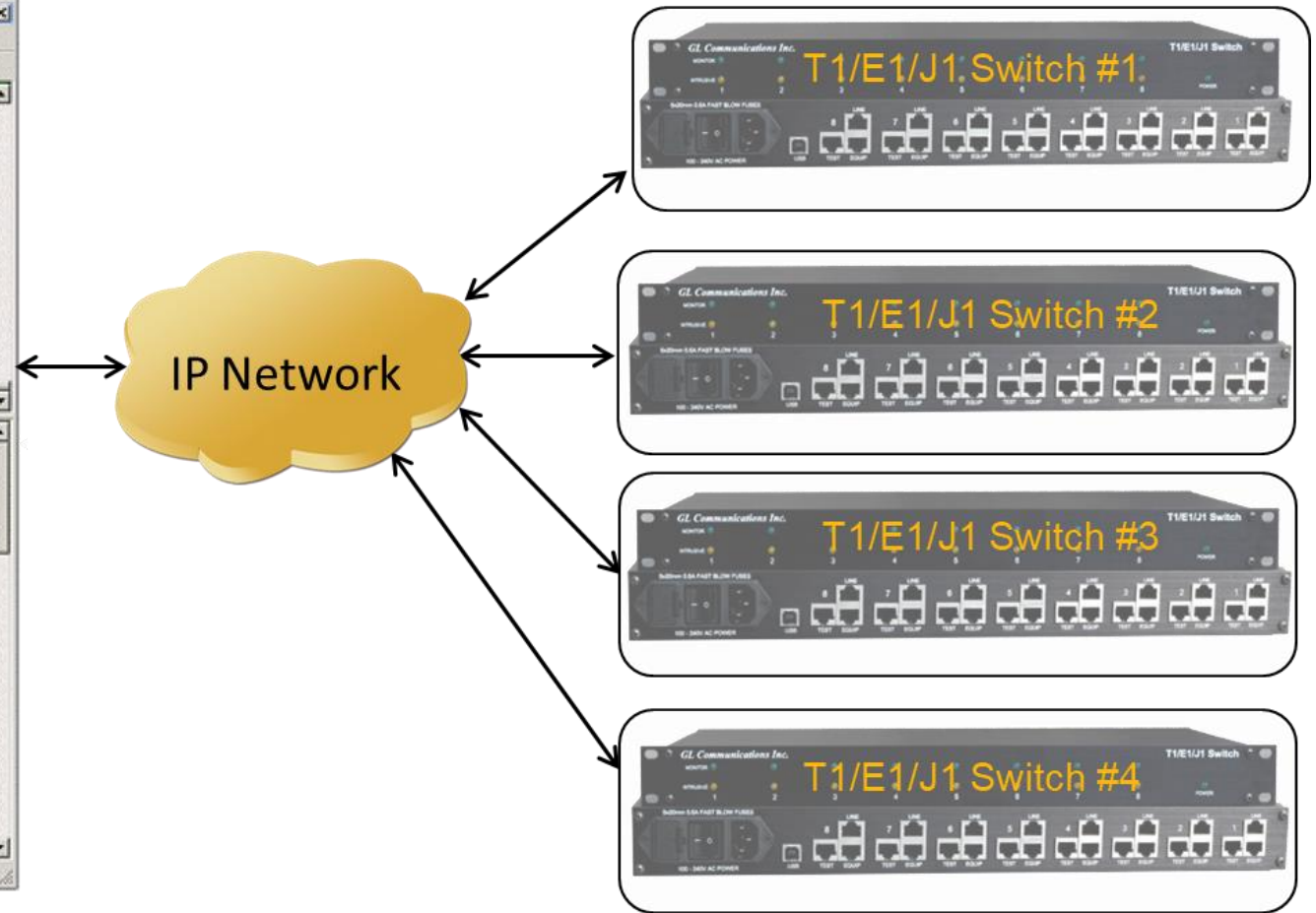
# Software Controls (Remote Location) Using GL's Windows Client/Server

```
Line1Testing_InternalUse.gls - GLClient
File Edit View Connect Script Log User Help
OK
// Sets Switch to Intrusive Mode on Line 1
run action "T1E1Switch:ControllerAction" using "action=set_mode, mode=4, port=1" #1;
result=success, action=set_mode, port=1, mode=4
Waiting 2000 msec
// Running "full framed Loop-up" bert pattern for 10 seconds
bert 64k pattern "csu loop-up" #1 framed 10 sec report 1 sec;
Task 2605: Task 2605 started
Task 2605: #1: BER[1.000]: SYNC=false, BERR=0, LPS=0, Bits=0
Task 2605: #1: BER[2.000]: SYNC=false, BERR=0, LPS=0, Bits=0
Task 2605: #1: BER[3.000]: SYNC=false, BERR=0, LPS=0, Bits=0
Task 2605: #1: BER[4.000]: SYNC=false, BERR=0, LPS=0, Bits=0
Task 2605: #1: BER[5.000]: SYNC=false, BERR=0, LPS=0, Bits=0
Task 2605: #1: BER[6.000]: SYNC=true, BERR=0, LPS=0, Bits=1535986
Task 2605: #1: BER[7.000]: SYNC=true, BERR=0, LPS=0, Bits=1535992
Task 2605: #1: BER[8.000]: SYNC=true, BERR=0, LPS=0, Bits=1535987

// USPS Testing Script - Line 1 Testing

// Sets T1 Testing Card to Proper INTRUSIVE Testing Modes
set rx interface terminate #1;
set superframe format est #1;
set line coding b8zs #1;
set bc clock source internal #1;
set outward driver loopback off #1;
set inward driver loopback off #1;
set latency default;
set response default;
set priority default;

// Sets Switch to Intrusive Mode on Line 1
run action "T1E1Switch:ControllerAction" using "action=set_mode, mode=4, port=1" #1;
wait 2000;
Ready Ver 4.6 NUM
```



**Thank You**