

# **Tcl Interface Operation Manual**

**Eighth Edition**

- This is an operation manual of MD1230A-06, MD1230B-06, MD1231A-06, MD1231A1-06, MX123001A-06.
- Read this manual before using the equipment.
- To ensure that the equipment is used safely, read the “For Safety” in the Operation Manual for each main unit first.
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This indicates a note. The contents are described in the box.



These indicate that the marked part should be recycled.

Tcl Interface  
Operation Manual

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### 1. Product Model

Option:	MD1230A-06 Tcl interface,
	MD1230B-06 Tcl interface,
	MD1231A-06 Tcl interface,
	MD1231A1-06 Tcl interface

### 2. Applied Directive and Standards

When the above options are installed in the main frame shown below, the applied directive and standards of these options are conformed to those of the main frame.

Main frame:	MD1230A/B Data Quality Analyzer,
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### C-tick marking



#### 1. Product Model

Option: MD1230A-06 Tcl interface,  
MD1230B-06 Tcl interface,  
MD1231A-06 Tcl interface,  
MD1231A1-06 Tcl interface

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PS: About main frame

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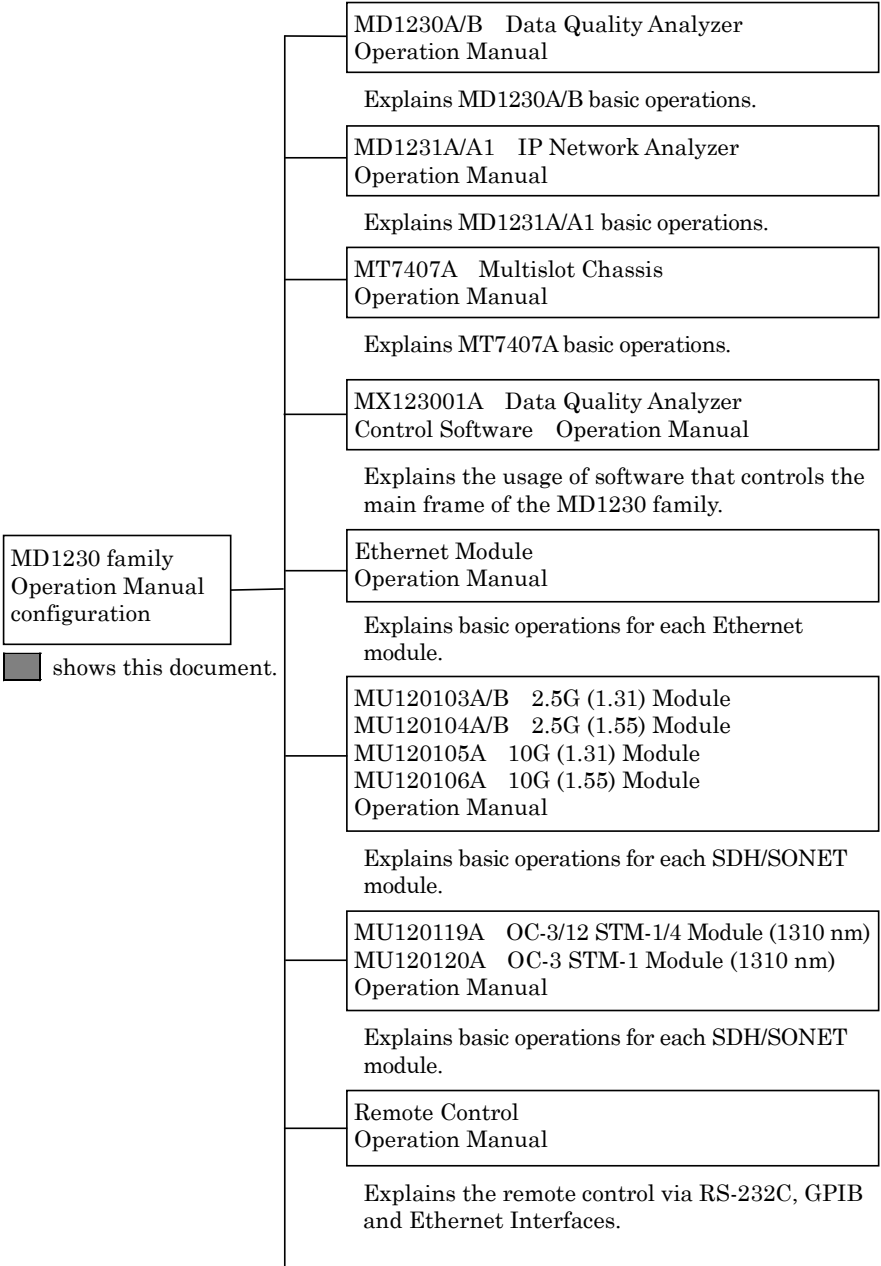


# About This Manual

MD1230 family operation manual consists of the main unit, control software, modules, remote control and options shown below.

**Note:**

MD1230 family is the generic name of MD1230A/B Data Quality Analyzer, MD1231A/A1 IP Network Analyzer and MT7407A Multislot Chassis.



	Decode Module Operation Manual	
	Explains basic operations for Decode Module.	
	Tcl Interface Operation Manual	
	Explains basic operation for Tcl Interface.	
	Expert Analysis Module Operation Manual	
	Explains basic operation for the Expert Analysis Module.	
	Application Traffic Monitor Operation Manual	
	Explains operation for the software that monitors traffics on Ethernet.	

This operation manual covers the following products:

Model Name	Product Name
MD1230A-06 MD1230B-06 MD1231A-06 MD1231A1-06 MX123001A-06	Tcl Interface

Description in this manual shows the case of using the MD1230A-06.

# Table of Contents

<b>About This Manual.....</b>	<b>I</b>
<b>Section 1   Introducing the Tcl Interface ...</b>	<b>1-1</b>
1.1   Introducing the Tcl Interface .....	1-2
1.2   Concepts .....	1-3
1.3   Operations Guidelines .....	1-5
<b>Appendix A   SCPI Commands by                   Macro Category .....</b>	<b>A-1</b>

1
Appendix




# Section 1 *Introducing the Tcl Interface*

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This section provides an overview of the Tcl Interface features and functions. “Tcl” is the acronym for Tool Command Language and is pronounced “tickle”.

 For list of SCPI commands grouped by macro category, refer to the Appendix “SCPI Commands by Macro Category”.

1.1	Introduction to the Tcl Interface .....	1-2
1.1.1	References .....	1-3
1.2	Concepts.....	1-3
1.2.1	Where to Start .....	1-3
1.3	Operations Guidelines .....	1-5
1.3.1	MD1230A Tcl Server Startup .....	1-5
1.3.2	MD1230A Tcl and SCPI Command Syntax..	1-5
1.3.2.1	Command Syntax.....	1-6
1.3.2.2	An Example of a Connect and Command Sequence .....	1-9
1.3.2.3	Developers Guidelines .....	1-14

This manual serves as an MD1230A Data Quality Analyzer Tcl Developers Guide and provides intermediate and advanced topics such as program control using the Tcl scripting language in an extended environment. This manual assumes you are familiar with operating the MD1230A using the remote control Standard Commands for Programmable Instruments (SCPI) command and response interface. This manual also assumes knowledge of basic programming constructs and techniques using the Tcl interpretive scripting language. Code samples are denoted by Courier type.

## 1.1 Introduction to the Tcl Interface

The Anritsu MD1230A Tcl interface is an optional user interface which provides automation for the configuration and execution of MD1230A operations. The Tcl API provides a generic socket-based interface to the MD1230A SCPI remote commands. SCPI commands and queries can be scripted in the Tcl programming environment to provide flexibility and automation of recurring tasks. Figure 1.1-1 shows the Tcl/MD1230A interface.

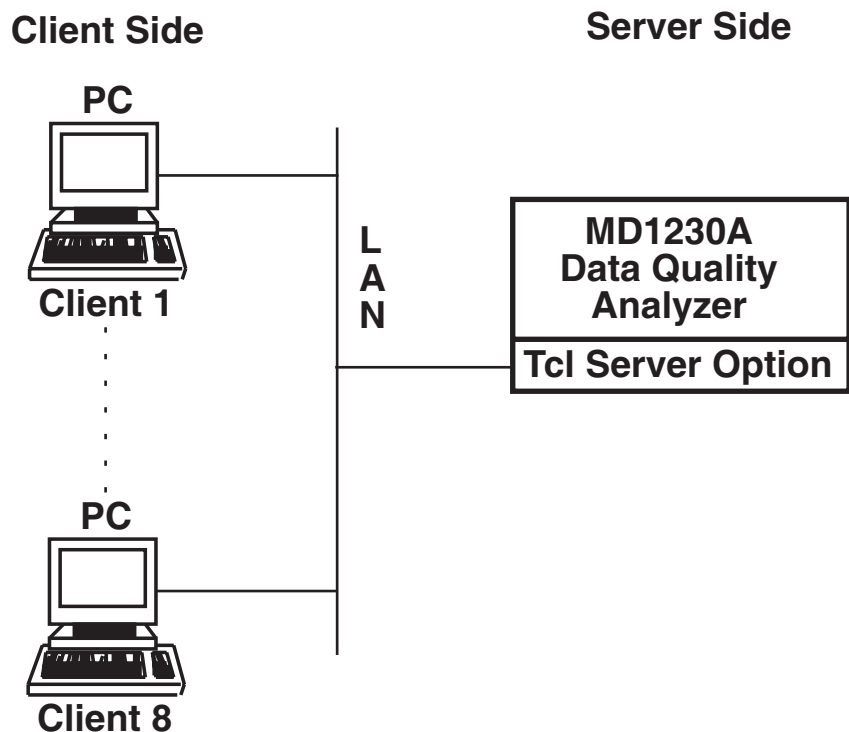


Fig. 1.1-1 Tcl Interface Architecture for the MD1230A



### 1.1.1 References

Tool Command Language (Tcl) interpreter + SCRIPTING language was crafted by John Ousterout in 1988 (U of C Berkley, Sun, Scriptic).

- <http://www.tcl.tk/>
- <http://www.SCPIconsortium.org/>
- <http://www.activestate.com/>

## 1.2 Concepts

### 1.2.1 Where to Start

Implementing an automated command sequence in a Tcl script still requires all of the preliminary connection and configuration stages that are necessary with the GUI and SCPI interfaces. The path to the targeted test point follows a basic hierarchy:

- Unit - **up to eight simultaneous MD1230A units connected**
- Module - **five available slots on the MD1230A**
- Port - **module dependent**

As indicated by the SCPI command/response naming conventions, the operations invoked by each command are static or single-event oriented. Mastering the sequencing of this command structure for the MD1230A is a first step towards successful command line remote control of the MD1230A.

The MD1230A Tcl scripting interface strives to provide a platform for developing vertical and horizontal programming setup and control of these single-event oriented instructions. Vertical programming consistency defines program commands/requests within a functional class. An example of vertical consistency is to use the same Tcl programmatic looping constructs to initialize common data parameters with a pre-defined data matrix.

Horizontal consistency means using the same commands to program similar functions across instrument classes. An example of horizontal consistency is to apply the same Tcl programmatic looping constructs to set up a Counter for packet measurement on multiple module types.

The client Tcl scripting complexity is open to the programmer's experience with Tcl capabilities. It is only necessary to identify a few common Tcl commands which are used to directly invoke SCPI embedded syntax on a Tcl socket:

- puts
- gets
- flush

These basic Tcl I/O commands along with some common Tcl string parsing commands for evaluating responses are all that are required to script meaningful, automated MD1230A operations.

## 1.3 Operations Guidelines

### 1.3.1 MD1230A Tcl Server Startup

- Selecting the Tcl Application button from the Selector Application on the MD1230A launches the Tcl Server. Figure 1.3-1 shows the Selector Application.

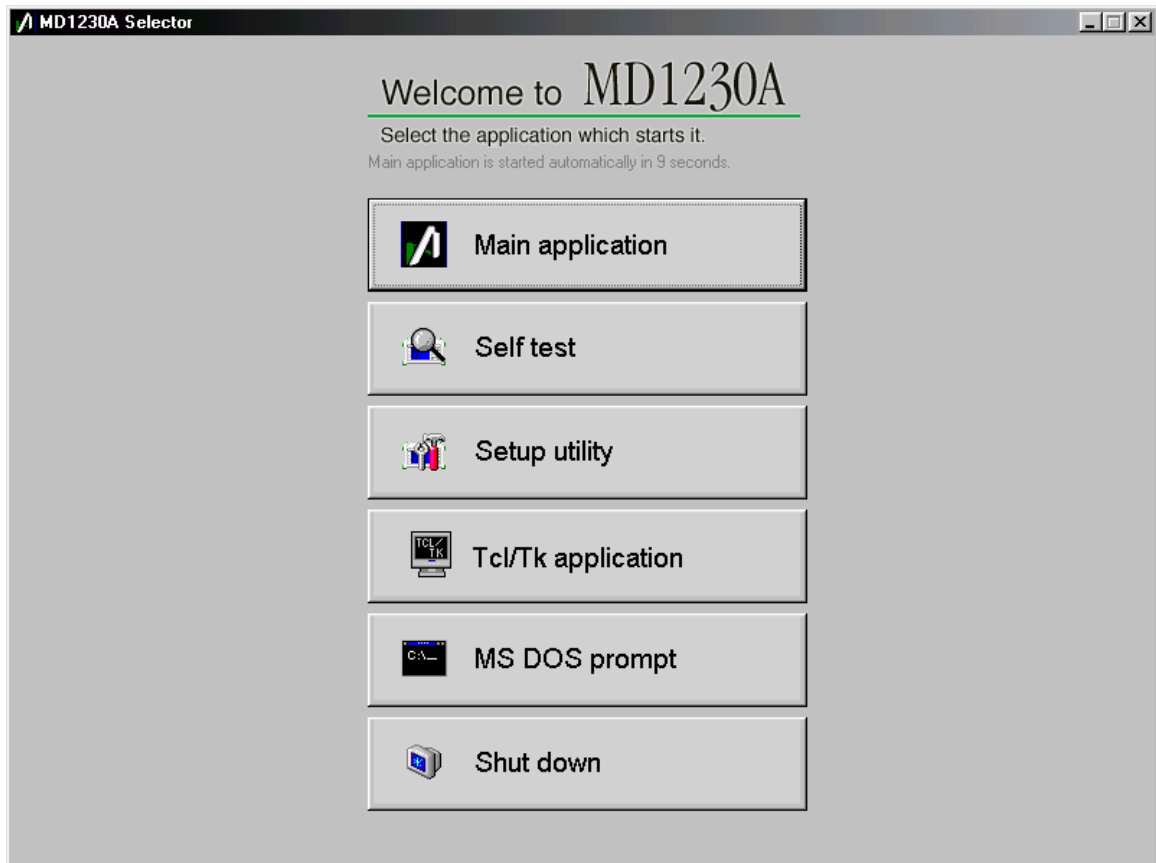


Fig. 1.3-1 Selector Application on the MD1230A

Once launched, the Tcl Server will not allow other local GUI and single Remote Control interface users to connect to the MD1230A. The Tcl Server will allow remote GUI users to connect to the MD1230A.

### 1.3.2 MD1230A Tcl and SCPI Command Syntax

It is beyond the scope of this document to cover the detail of the remote command techniques and capabilities for the MD1230A. An example of the style of syntax required for embedding the SCPI syntax within the Tcl interface and at a command line interface is included in this section. The details of MD1230A command sequencing can be found in the *Remote Control Operation Manual*.

### 1.3.2.1 Command Syntax

There are three types of commands:

- SCPI Commands.
- Macro Commands.
- Special purpose commands.

#### **SCPI Commands**

The command syntax of SCPI commands is as per the SCPI standard.

#### **Macro Commands**

Macro commands are provided by Anritsu Company to provide more user-friendly programming commands that are separate from the basic SCPI commands. The macro commands are made on top of the basic SCPI commands and each macro command may contain one or more than one SCPI command. Macro commands may be used wherever SCPI commands can be used.

The basic syntax of a command is as follows:

`M_COMMANDNAME :< VariableName>=<VALUE>, <VariableName>=<VALUE>...`

`M_COMMANDNAME? :< VariableName>, <VariableName>=<VALUE>, <VariableName>`

Macro commands can consist of a variable number of parameters. By definition, these variable names are formed to give a user-friendly specific name to the SCPI command. Variable names are formed by using the SCPI command and then removing the “.” (colon). Three macro groups are provided in this release; they are described below:

- M\_PORTSETTING
- M\_CAPTURE
- M\_TXSTREAM

An example of a response to a macro command is as follows:

```
M_COMMANDNAME :< VariableName> <ErrorStatus>, <VariableName> <ErrorStatus>...
```

```
M_COMMANDNAME? :< VariableName> <Value/ErrorStatus>, <VariableName> <Value/ErrorStatus>...
```

 For list of SCPI commands grouped by macro category, refer to the Appendix “SCPI Commands by Macro Category”.

### **M\_PORTSETTING Group (Use to configure the port setting)**

```
M_PORTSETTING: <VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> = <VARIABLE2 VALUE>...
```

```
M_PORTSETTING? : <VARIABLE1 NAME>, <VARIABLE2 NAME>...
```

### **M\_CAPTURE Group (Use to start/stop the data capture)**

```
M_CAPTURE:<VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> = <VARIABLE2 VALUE>...
```

```
M_CAPTURE?:<VARIABLE1 NAME>, <VARIABLE2 NAME>...
```

#### **M\_CAPTUREFILTERSETTING (Use to configure the filter for capturing data)**

```
M_CAPTUREFILTERSETTING: <VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> =  
<VARIABLE2 VALUE>...
```

```
M_CAPTUREFILTERSETTING?: <VARIABLE1 NAME>, <VARIABLE2 NAME>...
```

#### **M\_CAPTURETRIGGERSETTING (Use to configure the Trigger setting to start/stop capturing data)**

```
M_CAPTURETRIGGERSETTING: <VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> =  
<VARIABLE2 VALUE>...
```

```
M_CAPTURETRIGGERSETTING?: <VARIABLE1 NAME>, <VARIABLE2 NAME>...
```

## **M\_TXSTREAM Group (Use to stop/start the transmit the stream)**

M\_TXSTREAM:<VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> = <VARIABLE2 VALUE>...

M\_TXSTREAM?:<VARIABLE1 NAME>, <VARIABLE2 NAME>...

### **M\_TXSTFRAMESETTING (Use to configure the frame to be transmitted)**

M\_TXSTFRAMESETTING: <VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> = <VARIABLE2 VALUE>,...

M\_TXSTFRAMESETTING?: <VARIABLE1 NAME>, <VARIABLE2 NAME>...

### **M\_TXSTCONTROLSETTING (Use to configure the stream of data to be transmitted)**

M\_TXSTCONTROLSETTING: <VARIABLE1 NAME> = <VARIABLE1 VALUE>, <VARIABLE2 NAME> = <VARIABLE2 VALUE>,...

M\_TXSTCONTROLSETTING?: <VARIABLE1 NAME>, <VARIABLE2 NAME>...

## **Special Purpose Commands**

Special purpose commands are provided to perform functions such as Tcl server management, disconnecting clients from the Tcl server, and shutting down the Tcl Server:

- S\_DISCONNECTCLIENT (Use to disconnect the client from the server)
- S\_SHUTDOWNSERVER (Use for a graceful server shutdown)
- S\_CLIENTINFO (Use to retrieve information about the resource allocation of an MD1230A with Tcl Server clients)

### 1.3.2.2 An Example of a Connect and Command Sequence

#### Operations Guidelines:

To effectively utilize the Tcl server, the following guidelines should be followed when communicating from the client environment. All of the basic operation guidelines for unit connection, module selection, and port reservation still stringently apply when controlling the MD1230A via the Tcl interface.

1. The client must first connect to the Tcl server. Once connected, the server sends connection details. An example follows:

#### On Telnet:

```
Telnet <Server IP Address> 35001
```

The Server IP Address should be the Unit Windows Address.

#### On Tcl:

```
Set sock [socket <server IP Address> 35001]
```

2. Command terminology:

**Request** – a client is retrieving some data. For example,

```
:UENTry:ID?
```

**Command** – a client is making an action. For example,

```
:UENTry:ID <Id no>
```

3. Once the connection is established to the server, clients can execute either a command/request or script.

#### On Telnet:

```
:UENTry:ID <Id no>
```

#### On Tcl:

```
puts $sock :UENTry:ID <Id no>
flush $sock.
```

4. Before execution of any command/request, the client must set the unit, module, and port ids in order to execute any further commands/requests. To set unit, module, and port, use the following commands (in any sequence).

```
:UENTry:ID <Id no>
:MODULE:ID <Id no>
:PORT:ID <Id no>
```

5. After the client sets the unit, module, and port ids, clients can then execute any commands/requests. For example:

```
:UENTry:ID?
```

6. To execute any command on a particular port, the client must first reserve the port. If a client executes any command without reserving a port, the command will fail. However, a request does not require the client to first reserve the port. For example:

Client A wants to execute following command on a telnet session:

```
:Ethernet:ERRor:COLLision:ENABLE OFF
```

The client must first reserve the port on which the above command is being executed:

```
:PORT:OWNERSHIP:TAKE
```

If the client wants to execute the following request, it is not necessary to first reserve the port:

```
:Ethernet:ERRor:COLLision:ENABLE?
```

7. Port reservation is done on per client basis. If one client reserves one port, then a second client cannot reserve the same port. For example:

Client A executes the following command on a telnet session:

```
:PORT:OWNERSHIP:TAKE
RESULT Success
```

If Client B tries to reserve the same port, the following response will be received:

```
:PORT:OWNERSHIP:TAKE
RESULT Failed2020, Not owner
```



8. There are some commands which take input in hex format. To do this, the client has to provide data in hex preceded by “#H”.
9. For every command received, the Tcl server sends a response. An example of the command/request response is shown:

```
Result <Success/Failure> [Data]
```

10. A client can execute many commands at once, but the server sends responses in the same sequence as it receives. ***It is advisable that the client waits for a response before executing a second command.***

For example, a client could execute following commands on a telnet session:

```
:PORT:OWNERSHIP:TAKE
:Ethernet:ERROR:COLLision:ENABLe OFF
:Ethernet:ERROR:COLLision:ENABLe?
:Ethernet:ERROR:COLLision:INTerval 2
:Ethernet:ERROR:COLLision:INTerval?
```

The response would be returned in the same sequence:

```
RESULT Success
RESULT Success
RESULT SuccessOFF
RESULT Success
RESULT Success2
```

11. If the server does not support any command server response for a command, the following is returned.

```
<Command>: RESULT FailedCommand not supported
```

12. Commands/requests are not case sensitive. For example, the following commands will both successfully execute:

```
:PORT:OWNERSHIP:TAKE

:pOrt:ownership:TAKE
```

13. In addition to the SCPI commands, there are macro commands such as M\_TXSTREAM, M\_PORTSETTING, etc. The macro commands are made on top of the basic SCPI commands and each macro command may contain one or more than one SCPI command. Macro commands may be used wherever SCPI commands can be used. Before executing macro commands, ensure that you are familiar with SCPI commands. For example, instead of executing the following SCPI commands,

```
:PORT:ETHerNet:MADdress #H010203040506
:PORT:IP:IADdress #HC0A80103
:PORT:IP:GATeway #HC0A80100
:PORT:IP:NETMask #HFFFFFFF00
```

a client could execute the following macro command:

```
M_PortSetting:PORTETHerNetMADdress=#H010203040506,
PORTIPIADdress=#HC0A80103, PORTIPNETMask=#HFFFFFFF00,
PORTIPGATeway=#HC0A80100"
```

14. To disconnect from the server, issue the following command:

```
S_DISCONNECTCLIENT
```

**NOTE:**

Tx stream setup:

To configure the Tx Stream, it is recommended that you use macro commands. The Tcl server automatically puts the “Write” command (:TSTReam:TABLE:WRITE) at the end of the Tx stream configuration macro commands (M\_TxStControlSetting, M\_TxStFrameSetting).

If the Tx Stream configuration macro commands (as shown above) are not used to set up the Tx Stream, it may not configure properly when multiple clients are connected.

```
M_TxStControlSetting:TSTReamTABLEITEMCONTroldISTribution=CONT
M_TxStFrameSetting: TSTReamTABLEITEMSIZEtYPE=FIXED,
TSTReamTABLEITEMFSIZEVALue=1518,
TSTReamTABLEITEMFRAMEETHerNetDAVALue=#H000001000401,
TSTReamTABLEITEMFRAMEETHerNetSATYPE=THIS_PORT,
TSTReamTABLEITEMFRAMEETHerNetDATYPE=STATIC
```

**NOTE:**

\*RST Command:

When multiple clients are connected to a Tcl Server and one client sends the “\*RST” command, the resulting initialization will affect all of the connected clients. If each client is operating independently, this may cause unexpected results so please use caution when using the “\*RST” command.

**NOTE:**

Deleting a Group:

When deleting a group using the “:GENTry:DELeTe” command, existing group numbers are renumbered. For example, if starting with Group 1, Group 2 and Group 3, and Group 1 is deleted, only two groups remain. Group 2 is renumbered to become Group 1 and Group 3 becomes Group 2. If each client is operating independently, this may cause unexpected results so please use caution when using the “:GENTry:DELeTe” command.

### 1.3.2.3 Developers Guidelines

An annotated sample script is provided below to help you get started. Refer to the table following the script for an explanation of the script entries.

#### Sample Tcl Script

This script shows sample test code used to reserve the port and set some port settings of different modules in the MD1230A. The main purpose of this sample code is to explain how to use SCPI, Macro, and Special commands together in a client script. This script connects to the Tcl server and operates on ports of the different MD1230A modules.

```
1.  *****
2.  /* THIS FILE HAS tclSelfTestOccupiesPort FUNCTION WHICH COULD BE USED IN *
3.  /* SELFTEST OF TCL. THIS ROUTINE USES TRANSPARENT VARIABLE NAME.      *
4.  /* *****
5.  /* *****
6.  /* FUNCTION-NAME:  tclModuleTypeToNoOfPort { moduleType lngMaxPort }  *
7.  /* FUNCTION:      map module type to no of ports                      *
8.  /* INPUT:         moduleType lngMaxPort                               *
9.  /* OUTPUT:        no of ports                                         *
10. /* RETURN-VALUE:  Nothing                                             *
11. /* DESCRIPTION:   This sample program is a sample of making various  *
12. /* settings for each module. No measurements are actually taken.      *
13. /* (A signal is not output) This program assumes that the following   *
14. /* modules are inserted into Slot 1, Slot2, and Slot4 of the MD1230A.  *
15. /*                Slot1: 10M/100M module (MU120101A/11A)              *
16. /*                Slot2: GBE module (MU120102A/12A/18A)               *
17. /*                Slot4: 2.5G or 10G POS module (MU120103A/04A/05A/06A) *
18. /* *****
19.
20. proc tclModuleTypeToNoOfPort { moduleType lngMaxPort } {
21.     upvar $lngMaxPort ret
22.
23.     switch -exact -- $moduleType {
24.         1 { set ret 8 }
25.         2 { set ret 2 }
26.         5 -
27.         6 -
28.         7 -
29.         3 -
30.         4 { set ret 1 }
31.         default { set ret 0 }
32.     }
33.
```

```

34. }
35.
36. #*****
37. #* FUNCTION-NAME:  tclSelfTestOccupiesPort { moduleId moduleType sock } *
38. #* FUNCTION:      Initialization of port for selftest *
39. #* INPUT:         moduleId moduleType sock *
40. #* OUTPUT:        NONE *
41. #* RETURN-VALUE:  NONE *
42. #* DESCRIPTION:   *
43. #* *
44. #* *
45. #* *
46. #* *
47. #* *
48. #* *
49. #*****
50.
51. proc tclSelfTestOccupiesPort { moduleId moduleType sock } {
52.     set lngMaxPort 0
53.     tclModuleTypeToNoOfPort $moduleType lngMaxPort
54.     puts $sock ":Module:ID $moduleId"
55.     flush $sock
56.
57.     gets $sock cmdResponse
58.     puts stdout "tclSelfTestOccupiesPort .... start"
59.
60.     for { set lngPCnt 1 } { $lngPCnt <= $lngMaxPort } { incr lngPCnt } {
61.         puts $sock ":PORT:ID $lngPCnt"
62.         flush $sock
63.         gets $sock cmdResponse
64.         puts $sock ":PORT:OWNership:TAKE"
65.         flush $sock
66.         gets $sock cmdResponse
67.         puts $sock ":PORT:OWNership:CUSE?"
68.         flush $sock
69.         gets $sock cmdResponse
70.         puts $sock "M_PortSetting: PORTETHERnetMADdress=#H010203040506,
PORTIPIADdress=#HC0A80103, PORTIPNETMask=#HFFFFFF00, PORTIPGATeway=#HC0A80100"
71.
72.         flush $sock
73.         gets $sock cmdResponse
74.         puts $sock "M_PortSetting: PORTETHERnetMIILBACKENABLE=ON"
75.         flush $sock
76.         gets $sock cmdResponse

```

## Section 1 Introducing the Tcl Interface

---

```
77.
78.             switch -exact -- $moduleType {
79.                 1 {
80.                     puts $sock "M_PortSetting:
PORTETHERnetARPREPLYMODE=OFF, PORTICMPERePLYMODE=OFF"
81.                     flush $sock
82.                     gets $sock cmdResponse
83.                     if { $lngPCnt ==1 || $lngPCnt == 2 } {
84.                         puts $sock ":PORT:THROUGH:ENABLE OFF"
85.                         flush $sock
86.                         gets $sock cmdResponse
87.                     }
88.
89.                     puts $sock "M_PortSetting:
PORTETHERnetMIIANEGotiationENABLE=OFF, PORTETHERnetMIIANEGotiationDMODE=FULL,
PORTETHERnetMIIANEGotiationLSpeed=S100M, PORTETHERnetMIILBACKENABLE=ON"
90.                     flush $sock
91.                     gets $sock cmdResponse
92.                 }
93.                 2 {
94.                     puts $sock "M_PortSetting:
PORTETHERnetARPREPLYMODE=OFF, PORTICMPERePLYMODE=OFF"
95.                     flush $sock
96.                     gets $sock cmdResponse
97.
98.                     if { $lngPCnt ==1 || $lngPCnt == 2 } {
99.                         puts $sock ":PORT:THROUGH:ENABLE OFF"
100.                        flush $sock
101.                        gets $sock cmdResponse
102.                    }
103.                    puts $sock "M_PortSetting:
PORTETHERnetMIIANEGotiationENABLE=OFF, PORTETHERnetMIIANEGotiationDMODE=FULL,
PORTETHERnetMIILBACKENABLE=ON"
104.                    flush $sock
105.                    gets $sock cmdResponse
106.                }
107.                4 {
108.                    puts $sock ":MODule:SDH:CLOCK:TYPE INTERNAL"
109.                    flush $sock
110.                    gets $sock cmdResponse
111.                    puts $sock ":MODule:SDH:CLOCK:VARiable:ENABLE ON"
112.                    flush $sock
113.                    gets $sock cmdResponse
114.                    puts $sock ":MODule:SDH:CLOCK:VARiable:Value 0"
```

```

115.                flush $sock
116.                gets $sock cmdResponse
117.                puts $sock ":PORT:THROUGH:ENABLE OFF"
118.                flush $sock
119.                gets $sock cmdResponse
120.                puts $sock ":PORT:SDH:MAPPING PPP"
121.                flush $sock
122.                gets $sock cmdResponse
123.                puts $sock "M_PortSetting: PORTETHERNETARPREPLYMODE=OFF,
PORTICMPERePLYMODE=ON"
124.                flush $sock
125.                gets $sock cmdResponse
126.                puts $sock "M_PortSetting: PORTPPPPSCRAMBLEENABLE=ON,
PORTPPPDDESCRAMBLEENABLE=ON, PORTPPPFLENGTH=L1BYTE, PORTPPPNegotiationENABLE=ON,
PORTPPPNegotiationMRUTX=1500, PORTPPPIPCPENABLE=ON, PORTPPPNegotiationRETRYCOUNT=3,
PORTPPPNegotiationRETRYTIMEout=3"
127.                flush $sock
128.                gets $sock cmdResponse
129.            }
130.        }
131.    }
132. puts stdout "tclSelfTestOccupies ...end"
133. }
134. set sock [ socket 192.168.0.1 35001 ];
135. gets $sock line
136. tclSelfTestOccupiesPort 1 1 $sock
137. tclSelfTestOccupiesPort 2 2 $sock
138. tclSelfTestOccupiesPort 4 4 $sock
139. puts $sock "S_DISCONNECTCLIENT"

```

### Sample Tcl Script Annotations

Line #	Explanation
1-19	Comments.
20	<pre>proc tclModuleTypeToNoOfPort { moduleType lngMaxPort } {</pre> Declare procedure name <code>tclModuleTypeToNoOfPort</code> with parameters <code>moduleType</code> and <code>lngMaxPort</code>
21	<pre>upvar \$lngMaxPort ret</pre> Create link to variable in a different stack frame.
22	Comments.
23	<pre>switch -exact -- \$moduleType {</pre> Tcl syntax for switch or case statement. Parse the value stored in <code>\$moduleType</code> and find match. Use exact matching when comparing <i>string</i> to a pattern. This is the default.
24	<pre>1 { set ret 8 }</pre> If data stored in <code>\$moduleType</code> is '1' then set value of 'ret' to '8'.
25	<pre>2 { set ret 2 }</pre> If data stored in <code>\$moduleType</code> is '2' then set value of 'ret' to '2'.
26-30	<pre>5 - 6 - 7 - 3 - 4 { set ret 1 }</pre> If data stored in <code>\$moduleType</code> is equal to '3 – 7' then set value of 'ret' to '1'.
31	<pre>default { set ret 0 }</pre> Default, when no match is found then 'ret' is set to '0'.
32	<pre>}</pre> End Tcl switch statement.
33	Comments.
34	<pre>}</pre> End of <code>proc tclModuleTypeToNoOfPort</code>
35-50	Comments.



51	<pre>proc tclSelfTestOccupiesPort { moduleId moduleType sock } {</pre> <p>Declare procedure <code>tclSelfTestOccupiesPort</code> with parameters <code>moduleId</code>, <code>moduleType</code>, and <code>sock</code></p>
52	<pre>    set lngMaxPort 0;</pre> <p>Set global 'upvar' <code>lngMaxPort</code> to 0.</p>
53	<pre>    TclModuleTypeToNoOfPort \$moduleType lngMaxPort;</pre> <p>Call procedure <code>tclModuleTypeToNoOfPort</code> passing parameters <code>\$moduleType</code> and <code>lngMaxPort</code></p>
54	<pre>    puts \$sock ":Module:ID \$moduleId"</pre> <p>Outputs the “ “ string to the socket. This command selects the slot number and corresponding module type for testing.</p>
55	<pre>    flush \$sock</pre> <p>Sends the string.</p>
56	Comments.
57	<pre>    gets \$sock cmdResponse;</pre> <p>Reads the response.</p>
58	<pre>    puts stdout "tclSelfTestOccupiesPort ... start";</pre> <p>Prints “ “ string on console.</p>
59	Comments.
60	<pre>for { set lngPCnt 1 } { \$lngPCnt &lt;= \$lngMaxPort } { incr lngPCnt } {</pre> <p>For loop to cover every port on the board.</p>
61	<pre>    puts \$sock ":PORT:ID \$lngPCnt"</pre> <p>Outputs the “ “ string to the socket. This command selects the Port number for testing.</p>
62	<pre>    flush \$sock</pre> <p>Sends the string.</p>
63	<pre>    gets \$sock cmdResponse;</pre> <p>Reads the response.</p>
64	<pre>    puts \$sock ":PORT:OWNership TAKE"</pre> <p>Outputs the “ “ string to the socket. This command reserves this port.</p>
65	<pre>    flush \$sock</pre> <p>Sends the string.</p>
66	<pre>    gets \$sock cmdResponse;</pre> <p>Reads the response.</p>
67	<pre>    puts \$sock ":PORT:OWNership:CUSE?"</pre> <p>Outputs the “ “ string to the socket. This command verifies reservation.</p>

68	<code>flush \$sock;</code> Sends the string.
69	<code>gets \$sock cmdResponse;</code> Reads the response.
70	<code>puts \$sock "M_PortSetting: PORTETHERnetMADdRes=#H010203040506, PORTIPIADdRes=#HC0A80103, PORTIPNETMask=#HFFFFFFF00, PORTIPGATE- way=#HC0A8010"</code> Outputs the “ “ string to the socket. This is the macro command to set the port setting for MAC Address, IP Address, Net Mask, and Gateway IP Address (IP notation is in Hex).
71	Comments.
72	<code>flush \$sock</code> Sends the string.
73	<code>gets \$sock cmdResponse;</code> Reads the Response.
74	<code>puts \$sock "M_PortSetting: PORTETHERnetMIILBACKENABle=ON"</code> Outputs the “ “ string to the socket. This is the macro command to set the port setting for Enable Loopback mode.
75	<code>flush \$sock</code> Sends the string.
76	<code>gets \$sock cmdResponse;</code> Reads the response.
77	Comments.
78	<code>switch -exact -- \$moduleType {</code> Tcl syntax for switch or case statement. Parse the value stored in \$moduleType and find match. Use exact matching when comparing <i>string</i> to a pattern. This is the default.
79	<code>1</code> If data stored in \$moduleType is ‘1’.
80	<code>puts \$sock "M_PortSetting: PORTETHERnetARPREPLyMODE=OFF, PORTICMPERePLyMODE=OFF"</code> Outputs the “ “ string to the socket. This is the macro command to set the port setting for Enable ARP reply on this port.
81	<code>flush \$sock</code> Sends the string.
82	<code>gets \$sock cmdResponse;</code> Reads the response.
83	<code>if { \$lngPCnt == 1    \$lngPCnt == 2 } {</code> If port no is 1 or 2.
84	<code>puts \$sock ":PORT:THrough:ENABle OFF"</code> Outputs the “ “ string to the socket. This command enables Though mode.

85	flush \$sock Sends the string.
86	gets \$sock cmdResponse; Reads the response.
87	} Closing of if { \$lngPCnt == 1    \$lngPCnt == 2 } {
88	Comments.
89	puts \$sock "M_PortSetting:PORTETHERnetMIIANEGotiationENABLE=OFF, PORTETHERnetMIIANEGotiationDMODE=FULL, PORTETHERnetMIIANEGotiationLSPeed=S100M, PORTETHERnetMIIILBACKENABLE=ON" Outputs the “ “ string to the socket. This is the macro command to set the port setting for detailed configuration.
90	flush \$sock Sends the string.
91	gets \$sock cmdResponse; Reads the response.
92	} Closing of 1{ .
93	1 { If data stored in \$moduleType is ‘2’.
94	puts \$sock "M_PortSetting: PORTETHERnetARPREPLYMODE=OFF, PORTICMPERePLYMODE=OFF" Outputs the “ “ string to the socket. This is the macro command to set the port setting. This command disables ARP and ICMP reply on this port.
95	flush \$sock Sends the data.
96	gets \$sock cmdResponse; Reads the response.
97	Comments.
98	if { \$lngPCnt == 1    \$lngPCnt == 2 } { If port no is 1 or 2.
99	puts \$sock ":PORT:ThRough:ENABle OFF" Outputs the “ “ string to the socket.
100	flush \$sock Sends the data.
101	gets \$sock cmdResponse; Reads the response.
102	} Closing of if { \$lngPCnt == 1    \$lngPCnt == 2 } {

103	<pre>puts \$sock "M_PortSetting:PORTETHERnetMIIANEGotiationENABLE=OFF, PORTETHERnetMIIANEGotiationDMODE=FULL, PORTETHERnetMIILBACKENABLE=ON"</pre> <p>Outputs the “ “ string to the socket. This is the macro command to set the port setting.</p>
104	<pre>flush \$sock</pre> <p>Sends the data.</p>
105	<pre>gets \$sock cmdResponse;</pre> <p>Reads the response.</p>
106	<pre>}</pre> <p>Closing of 2{ .</p>
107	<pre>4{</pre> <p>If data stored in \$moduleType is ‘4’</p>
108	<pre>puts \$sock ":MODule:SDH:CLOCK:TYPE INTERNAL"</pre> <p>Outputs the “ “ string to the socket.</p>
109	<pre>flush \$sock</pre> <p>Sends the data.</p>
110	<pre>gets \$sock cmdResponse;</pre> <p>Reads the response.</p>
111	<pre>puts \$sock ":MODule:SDH:CLOCK:VARiable:ENABle ON"</pre> <p>Outputs the “ “ string to the socket.</p>
112	<pre>flush \$sock</pre> <p>Sends the data.</p>
113	<pre>gets \$sock cmdResponse;</pre> <p>Reads the response.</p>
114	<pre>puts \$sock ":MODule:SDH:CLOCK:VARiable:Value 0"</pre> <p>Outputs the “ “ string to the socket.</p>
115	<pre>flush \$sock</pre> <p>Sends the data</p>
116	<pre>gets \$sock cmdResponse;</pre> <p>Reads the response</p>
117	<pre>puts \$sock ":PORT:THROUGH:ENABle OFF"</pre> <p>Outputs the “ “ string to the socket.</p>

118	<code>flush \$sock</code> Sends the data.
119	<code>gets \$sock cmdResponse;</code> Reads the response.
120	<code>puts \$sock ":PORT:SDH:MAPPING PPP"</code> Outputs the “ “ string to the socket.
121	<code>Flush \$sock</code> Sends the data.
122	<code>gets \$sock cmdResponse;</code> Reads the response.
123	<code>puts \$sock "M_PortSetting: PORTETHERnetARPrePLYMODE=OFF,</code> <code>PORTICMPERePLYMODE=ON"</code> Outputs the “ “ string to the socket. This is the macro command to set the port setting.
124	<code>Flush \$sock</code> Sends the string.
125	<code>gets \$sock cmdResponse;</code> Reads the response.
126	<code>puts \$sock "M_PortSetting:</code> <code>PORTPPPSCrableENABLE=ON,PORTPPPDSCrambleENABLE=ON,PORTPPPFLENGth=L1BYTE,</code> <code>PORTPPPNEGotiationENABLE=ON, PORTPPPNEGotiationMRUTX=1500 ,</code> <code>PORTPPPIPCPENABLE=ON, PORTPPPNEGotiationRETRYCOUNT=3 ,</code> <code>PORTPPPNEGotiationRETRYTIMEout=3"</code> Outputs the “ “ string to the socket. This is the macro command to set the port setting for various detailed SONET parameters.
127	<code>Flush \$sock</code> Sends the data.
128	<code>gets \$sock cmdResponse;</code> Reads the response.
129	<code>}</code> Closing of 4{ .
130	<code>}</code> Closing of <code>switch -exact -- \$moduleType {</code>
131	<code>}</code> Closing of for loop
132	<code>puts stdout "tclSelfTestOccupiesPort ... end";</code> Outputs the “ “ string to the socket.
133	<code>}</code> Closing of <code>proc tclSelfTestOccupiesPort</code>

## *Section 1 Introducing the Tcl Interface*

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134	<pre>set sock [ socket 192.168.0.1 35001 ] ;</pre> <p>This begins the MAIN program section. Tcl client connect to server at 192.168.0.1 port 35001.</p>
135	<pre>gets \$sock line</pre>
136	<pre>TclSelfTestOccupiesPort 1 1 \$sock;</pre> <p>Occupies the ports on module 1 and type 1.</p>
137	<pre>TclSelfTestOccupiesPort 2 2 \$sock;</pre> <p>Occupies the ports on module 1 and type 2.</p>
138	<pre>TclSelfTestOccupiesPort 4 4 \$sock;</pre> <p>Occupies the ports on module 1 and type 4.</p>
139	<pre>puts \$sock "S_DISCONNECTCLIENT"</pre> <p>Disconnects the client.</p>

Appendix A   SCPI Commands by Macro Category.....   A-1





## *Appendix A SCPI Commands by Macro Category*

### **A. SCPI Commands by Macro Category**

The following table shows the SCPI commands grouped by macro category.

SCPI	SCPI Request	Transparent Variable Name	Macro Name
-	:PORT:LINK?	PORTLINK	M_PortSetting
:PORT:ICMP:EREPLY:MODE	:PORT:ICMP:EREPLY:MODE?	PORTICMPEREPLYMODE	M_PortSetting
:PORT:IP:GATeway	:PORT:IP:GATeway?	PORTIPGATeway	M_PortSetting
:PORT:IP:IADdress	:PORT:IP:IADdress?	PORTIPIADdress	M_PortSetting
:PORT:IP:NETMask	:PORT:IP:NETMask?	PORTIPNETMask	M_PortSetting
:PORT:{SDH   SONet}:MAPPING	:PORT:{SDH   SONet}:MAPPING?	PORT{SDH   SONet}MAPPING	M_PortSetting
:PORT:THROUGH:ENABLE	:PORT:THROUGH:ENABLE?	PORTTHROUGHENABLE	M_PortSetting
:PORT:{SDH   SONet}:THROUGH:OOVwrite	:PORT:{SDH   SONet}:THROUGH:OOVwrite?	PORT{SDH   SONet}THROUGHOOVwrite	M_PortSetting
-	:PORT:{SDH   SONet}:BRATe?	PORT{SDH   SONet}BRATe	M_PortSetting
:PORT:PPP:DESCramble:ENABLE	:PORT:PPP:DESCramble:ENABLE?	PORTPPPDESCrambleENABLE	M_PortSetting
:PORT:PPP:FLENgth	:PORT:PPP:FLENgth?	PORTPPPFLENgth	M_PortSetting
:PORT:PPP:SCRamble:ENABLE	:PORT:PPP:SCRamble:ENABLE?	PORTPPPSCRambleENABLE	M_PortSetting
:PORT:PPP:NEGotiation:ENABLE	:PORT:PPP:NEGotiation:ENABLE?	PORTPPPNEGotiationENABLE	M_PortSetting
:PORT:PPP:NEGotiation:MRU:TX	:PORT:PPP:NEGotiation:MRU:TX?	PORTPPPNEGotiationMRUTX	M_PortSetting
:PORT:PPP:NEGotiation:RETRY:COUNT	:PORT:PPP:NEGotiation:RETRY:COUNT?	PORTPPPNEGotiationRETRYCOUNT	M_PortSetting
:PORT:PPP:NEGotiation:RETRY:TIMEout	:PORT:PPP:NEGotiation:RETRY:TIMEout?	PORTPPPNEGotiationRETRYTIMEout	M_PortSetting
-	:PORT:PPP:NEGotiation:MNUMBER:RX?	PORTPPPNEGotiationMNUMBERRX	M_PortSetting
-	:PORT:PPP:NEGotiation:MNUMBER:TX?	PORTPPPNEGotiationMNUMBERTX	M_PortSetting
-	:PORT:PPP:NEGotiation:MRU:RX?	PORTPPPNEGotiationMPURX	M_PortSetting
:PORT:BULK:DfIeld:PATtern	:PORT:BULK:DfIeld:PATtern?	PORTBULKDFIeldPATtern	M_PortSetting
:PORT:BULK:DfIeld:TYPE	:PORT:BULK:DfIeld:TYPE?	PORTBULKDFIeldTYPE	M_PortSetting
:PORT:ETHernet:ARP:REPLY:MODE	:PORT:ETHernet:ARP:REPLY:MODE?	PORTETHernetARPREPLYMODE	M_PortSetting
-	:PORT:ETHernet:DMode?	PORTETHernetDMODE	M_PortSetting
-	:PORT:ETHernet:LSPeet?	PORTETHernetLSPeet	M_PortSetting
:PORT:ETHernet:MADdress	:PORT:ETHernet:MADdress?	PORTETHernetMADdress	M_PortSetting
:PORT:ETHernet:MII:ANEGotiation:DMODE	:PORT:ETHernet:MII:ANEGotiation:DMODE?	PORTETHernetMIIANEGotiationDMODE	M_PortSetting
:PORT:ETHernet:MII:ANEGotiation:ENABLE	:PORT:ETHernet:MII:ANEGotiation:ENABLE?	PORTETHernetMIIANEGotiationENABLE	M_PortSetting
:PORT:ETHernet:MII:ANEGotiation:LSPeet	:PORT:ETHernet:MII:ANEGotiation:LSPeet?	PORTETHernetMIIANEGotiationLSPeet	M_PortSetting
:PORT:ETHernet:MII:ANEGotiation:ADVertise:100Full	:PORT:ETHernet:MII:ANEGotiation:ADVertise:100Full?	PORTETHernetMIIANEGotiationADVertise100Full	M_PortSetting

:PORT:ETHernet:MII:ANEGotiation:ADVertise:100Half	:PORT:ETHernet:MII:ANEGotiation:ADVertise:100Half?	PORT:ETHernet:MII:ANEGotiation:ADVertise:100Half	M_PortSetting
:PORT:ETHernet:MII:ANEGotiation:ADVertise:10Full	:PORT:ETHernet:MII:ANEGotiation:ADVertise:10Full?	PORT:ETHernet:MII:ANEGotiation:ADVertise:10Full	M_PortSetting
:PORT:ETHernet:MII:ANEGotiation:ADVertise:10Half	:PORT:ETHernet:MII:ANEGotiation:ADVertise:10Half?	PORT:ETHernet:MII:ANEGotiation:ADVertise:10Half	M_PortSetting
:PORT:ETHernet:MII:FCOntrl:DPControl:ADDRess	:PORT:ETHernet:MII:FCOntrl:DPControl:ADDRess?	PORT:ETHernet:MII:FCOntrl:DPControl:ADDRess	M_PortSetting
:PORT:ETHernet:MII:FCOntrl:MPControl:ENABle	:PORT:ETHernet:MII:FCOntrl:MPControl:ENABle?	PORT:ETHernet:MII:FCOntrl:MPControl:ENABle	M_PortSetting
:PORT:ETHernet:MII:LBACk:ENABle	:PORT:ETHernet:MII:LBACk:ENABle?	PORT:ETHernet:MII:LBACk:ENABle	M_PortSetting
:PORT:ETHernet:MII:VALue	:PORT:ETHernet:MII:VALue?	PORT:ETHernet:MII:VALue	M_PortSetting
:PORT:PPP:IPCP:ENABle	:PORT:PPP:IPCP:ENABle?	PORT:PPP:IPCP:ENABle	M_PortSetting
:PORT:ETHernet:MII:FCOntrl:DPControl:ENABle	:PORT:ETHernet:MII:FCOntrl:DPControl:ENABle?	PORT:ETHernet:MII:FCOntrl:DPControl:ENABle	M_PortSetting
:PORT:ETHernet:MII:FCOntrl:DPControl:TYPE	:PORT:ETHernet:MII:FCOntrl:DPControl:TYPE?	PORT:ETHernet:MII:FCOntrl:DPControl:TYPE	M_PortSetting
-	:PORT:OPTical?	PORT:OPTical	M_PortSetting
:PORT:PPP:NEGotiation:ABORt	-	PORT:PPP:NEGotiation:ABORt	M_PortSetting
:TSTReam:STARt	-	TSTReam:STARt	M_TxStream
:TSTReam:STOP	-	TSTReam:STOP	M_TxStream
:TSTReam:TABLE:ITEM:FRAME:DField1:ENABle	:TSTReam:TABLE:ITEM:FRAME:DField1:ENABle?	TSTReam:TABLE:ITEM:FRAME:DField1:ENABle	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField1:LENGth	:TSTReam:TABLE:ITEM:FRAME:DField1:LENGth?	TSTReam:TABLE:ITEM:FRAME:DField1:LENGth	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField1:OFFSet	:TSTReam:TABLE:ITEM:FRAME:DField1:OFFSet?	TSTReam:TABLE:ITEM:FRAME:DField1:OFFSet	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField1:PROGram:PATtern	:TSTReam:TABLE:ITEM:FRAME:DField1:PROGram:PATtern?	TSTReam:TABLE:ITEM:FRAME:DField1:PROGram:PATtern	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField1:TYPE	:TSTReam:TABLE:ITEM:FRAME:DField1:TYPE?	TSTReam:TABLE:ITEM:FRAME:DField1:TYPE	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField2:ENABle	:TSTReam:TABLE:ITEM:FRAME:DField2:ENABle?	TSTReam:TABLE:ITEM:FRAME:DField2:ENABle	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField2:LENGth	:TSTReam:TABLE:ITEM:FRAME:DField2:LENGth?	TSTReam:TABLE:ITEM:FRAME:DField2:LENGth	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField2:OFFSet	:TSTReam:TABLE:ITEM:FRAME:DField2:OFFSet?	TSTReam:TABLE:ITEM:FRAME:DField2:OFFSet	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField2:TYPE	:TSTReam:TABLE:ITEM:FRAME:DField2:TYPE?	TSTReam:TABLE:ITEM:FRAME:DField2:TYPE	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField3:ENABle	:TSTReam:TABLE:ITEM:FRAME:DField3:ENABle?	TSTReam:TABLE:ITEM:FRAME:DField3:ENABle	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField3:LENGth	:TSTReam:TABLE:ITEM:FRAME:DField3:LENGth?	TSTReam:TABLE:ITEM:FRAME:DField3:LENGth	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField3:OFFSet	:TSTReam:TABLE:ITEM:FRAME:DField3:OFFSet?	TSTReam:TABLE:ITEM:FRAME:DField3:OFFSet	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField3:TYPE	:TSTReam:TABLE:ITEM:FRAME:DField3:TYPE?	TSTReam:TABLE:ITEM:FRAME:DField3:TYPE	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField4:ENABle	:TSTReam:TABLE:ITEM:FRAME:DField4:ENABle?	TSTReam:TABLE:ITEM:FRAME:DField4:ENABle	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField4:LENGth	:TSTReam:TABLE:ITEM:FRAME:DField4:LENGth?	TSTReam:TABLE:ITEM:FRAME:DField4:LENGth	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DField4:OFFSet	:TSTReam:TABLE:ITEM:FRAME:DField4:OFFSet?	TSTReam:TABLE:ITEM:FRAME:DField4:OFFSet	M_TxStFrameSetting

:TSTReam:TABLE:ITEM:FRAME:DFIeld4:TYPE	:TSTReam:TABLE:ITEM:FRAME:DFIeld4:TYPE?	TSTReamTABLEITEMFRAMEDFIeld4TYPE	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:BDATa	:TSTReam:TABLE:ITEM:FRAME:BDATa?	TSTReamTABLEITEMFRAMEBDATa	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:CONTRol:BPSTream	:TSTReam:TABLE:ITEM:CONTRol:BPSTream?	TSTReamTABLEITEMCONTRolBPSTream	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:COUNt	:TSTReam:TABLE:ITEM:CONTRol:COUNt?	TSTReamTABLEITEMCONTRolCOUNt	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:DISTRibution	:TSTReam:TABLE:ITEM:CONTRol:DISTRibution?	TSTReamTABLEITEMCONTRolDISTRibution	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:FPBurst	:TSTReam:TABLE:ITEM:CONTRol:FPBurst?	TSTReamTABLEITEMCONTRolFPBurst	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:JTID	:TSTReam:TABLE:ITEM:CONTRol:JTID?	TSTReamTABLEITEMCONTRolJTID	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:GAP:IBG	:TSTReam:TABLE:ITEM:CONTRol:GAP:IBG?	TSTReamTABLEITEMCONTRolGAPIBG	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:GAP:ISG	:TSTReam:TABLE:ITEM:CONTRol:GAP:ISG?	TSTReamTABLEITEMCONTRolGAPISG	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:VALue	:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:VALue?	TSTReamTABLEITEMCONTRolGAPIFGVALue	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:MAXimum	:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:MAXimum?	TSTReamTABLEITEMCONTRolGAPIFGMAXimum	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:MINimum	:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:MINimum?	TSTReamTABLEITEMCONTRolGAPIFGMINimum	M_TxStControlSetting
:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:TYPE	:TSTReam:TABLE:ITEM:CONTRol:GAP:IFG:TYPE?	TSTReamTABLEITEMCONTRolGAPIFGTYPE	M_TxStControlSetting
:TSTReam:TABLE:ITEM:ERRor:IP:TYPE	:TSTReam:TABLE:ITEM:ERRor:IP:TYPE?	TSTReamTABLEITEMERRorIPTYPE	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:ERRor:TCP:TYPE	:TSTReam:TABLE:ITEM:ERRor:TCP:TYPE?	TSTReamTABLEITEMERRorTCPTYPE	M_TxStFrameSetting
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:TSTReam:TABLE:ITEM:FRAME:PPP:PROTocol:AUTO	:TSTReam:TABLE:ITEM:FRAME:PPP:PROTocol:AUTO?	TSTReamTABLEITEMFRAMEPPPPROTocolAUTO	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:ETHernet:PROTocol:AUTO	:TSTReam:TABLE:ITEM:FRAME:ETHernet:PROTocol:AUTO?	TSTReamTABLEITEMFRAMEETHernetPROTocolAUTO	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:PROTocol:MCONtrol:QUANta	:TSTReam:TABLE:ITEM:PROTocol:MCONtrol:QUANta?	TSTReamTABLEITEMPROTocolMCONtrolQUANta	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:FRAME:DFIeld1:SN:VALue	:TSTReam:TABLE:ITEM:FRAME:DFIeld1:SN:VALue?	TSTReamTABLEITEMFRAMEDFIeld1SNVALue	M_TxStFrameSetting
:TSTReam:TABLE:ITEM:PROTocol:IP:PROTocol:AUTO	:TSTReam:TABLE:ITEM:PROTocol:IP:PROTocol:AUTO?	TSTReamTABLEITEMPROTocolIPPROTocolAUTO	M_TxStFrameSetting
:Filter:COMBination	:Filter:COMBination?	FilterCOMBination	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:PATtern1:MASK	:Filter:PATtern1:MASK?	FilterPATtern1MASK	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:PATtern1:OFFSet	:Filter:PATtern1:OFFSet?	FilterPATtern1OFFSet	M_CaptureFilterSetting or



			M_CaptureTriggerSetting
:Filter:PATtern1:VALue	:Filter:PATtern1:VALue?	FilterPATtern1VALue	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:PATtern2:MASK	:Filter:PATtern2:MASK?	FilterPATtern2MASK	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:PATtern2:OFFSet	:Filter:PATtern2:OFFSet?	FilterPATtern2OFFSet	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:PATtern2:VALue	:Filter:PATtern2:VALue?	FilterPATtern2VALue	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:ERRor:TYPE	:Filter:ERRor:TYPE?	FilterERRorTYPE	M_CaptureFilterSetting or M_CaptureTriggerSetting

:Filter:IP:DA:MASK	:Filter:IP:DA:MASK?	FilterIPDAMASK	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:IP:DA:VALue	:Filter:IP:DA:VALue?	FilterIPDAVALue	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:IP:SA:MASK	:Filter:IP:SA:MASK?	FilterIPSAMASK	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:IP:SA:VALue	:Filter:IP:SA:VALue?	FilterIPSAVALue	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:Ethernet:DA:MASK	:Filter:Ethernet:DA:MASK?	FilterEthernetDAMASK	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:Ethernet:DA:VALue	:Filter:Ethernet:DA:VALue?	FilterEthernetDAVALue	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:Ethernet:SA:MASK	:Filter:Ethernet:SA:MASK?	FilterEthernetSAMASK	M_CaptureFilterSetting or M_CaptureTriggerSetting
:Filter:Ethernet:SA:VALue	:Filter:Ethernet:SA:VALue?	FilterEthernetSAVALue	M_CaptureFilterSetting or M_CaptureTriggerSetting
:CAPTure:START	-	CAPTureSTART	M_Capture
:CAPTure:STOP	-	CAPTureSTOP	M_Capture
:CAPTure:Trigger	-	CAPTureTrigger	M_Capture
-	:CAPTure:TIME:ELAPsed?	CAPTureTIMEELAPsed	M_Capture
-	:CAPTure:TIME:START?	CAPTureTIMESTART	M_Capture
-	:CAPTure:STATe?	CAPTureSTATe	M_Capture
-	:CAPTure:TIME:STOP?	CAPTureTIMESTOP	M_Capture
-	:CAPTure:BUFFer:NFRames?	CAPTureBUFFerNFRames	M_Capture
-	:CAPTure:BUFFer:Trigger?	CAPTureBUFFerTrigger	M_Capture
	:CAPTure:BUFFer:FRAMe:DATA?	CAPTureBUFFerFRAMeDATA	M_Capture
-	:CAPTure:BUFFer:FRAMe:LENGth?	CAPTureBUFFerFRAMeLENGth	M_Capture
-	:CAPTure:BUFFer:FRAMe:TIMestamp?	CAPTureBUFFerFRAMeTIMestamp	M_Capture
:CAPTure:Filter:DA	:CAPTure:Filter:DA?	CAPTureFilterDA	M_CaptureFilterSetting

:CAPTure:Filter:ENABle	:CAPTure:Filter:ENABle?	CAPTureFilterENABle	M_CaptureFilterSetting
:CAPTure:Filter:ERRor	:CAPTure:Filter:ERRor?	CAPTureFilterERRor	M_CaptureFilterSetting
:CAPTure:Filter:PATtern1	:CAPTure:Filter:PATtern1?	CAPTureFilterPATtern1	M_CaptureFilterSetting
:CAPTure:Filter:PATtern2	:CAPTure:Filter:PATtern2?	CAPTureFilterPATtern2	M_CaptureFilterSetting
:CAPTure:Filter:SA	:CAPTure:Filter:SA?	CAPTureFilterSA	M_CaptureFilterSetting
:CAPTure:Trigger:DA	:CAPTure:Trigger:DA?	CAPTureTriggerDA	M_CaptureTriggerSetting
:CAPTure:Trigger:ENABle	:CAPTure:Trigger:ENABle?	CAPTureTriggerENABle	M_CaptureTriggerSetting
:CAPTure:Trigger:ERRor	:CAPTure:Trigger:ERRor?	CAPTureTriggerERRor	M_CaptureTriggerSetting
:CAPTure:Trigger:PATtern1	:CAPTure:Trigger:PATtern1?	CAPTureTriggerPATtern1	M_CaptureTriggerSetting
:CAPTure:Trigger:PATtern2	:CAPTure:Trigger:PATtern2?	CAPTureTriggerPATtern2	M_CaptureTriggerSetting
:CAPTure:Trigger:POSition	:CAPTure:Trigger:POSition?	CAPTureTriggerPOSition	M_CaptureTriggerSetting
:CAPTure:Trigger:SA	:CAPTure:Trigger:SA?	CAPTureTriggerSA	M_CaptureTriggerSetting
:CAPTure:Trigger:EXtErnal:ENABle	:CAPTure:Trigger:EXtErnal:ENABle?	CAPTureTriggerEXtErnalENABle	M_CaptureTriggerSetting
:CAPTure:Trigger:LATency:ENABle	:CAPTure:Trigger:LATency:ENABle?	CAPTureTriggerLATencyENABle	M_CaptureTriggerSetting
:CAPTure:Trigger:LATency:THReshold	:CAPTure:Trigger:LATency:THReshold?	CAPTureTriggerLATencyTHReshold	M_CaptureTriggerSetting
:CAPTure:Trigger:TRAFfic:ENABle	:CAPTure:Trigger:TRAFfic:ENABle?	CAPTureTriggerTRAFficENABle	M_CaptureTriggerSetting
:CAPTure:Trigger:TRAFfic:THReshold	:CAPTure:Trigger:TRAFfic:THReshold?	CAPTureTriggerTRAFficTHReshold	M_CaptureTriggerSetting

