ICS ELECTRONICS
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APPLICATION BULLETIN

UNDOCUMENTED 4896 COMMANDS

INTRODUCTION

This application note describes undocumented 4896 commands and the restrictions on using them. The note was updated on July 7, 1997 to show the current SCPI command tree and describes the latest 4896 firmware changes.

COMMAND DESCRIPTION

There are five undocumented 4896 commands that provide the user with some control over the handshake signals on the 4896's serial ports and the ability to read back the handshake signal status. The commands were included in the 4896's original firmware to assist the test technician in troubleshooting serial interface problems. However, the commands can be useful to some customers who need to toggle the serial handshake signals or who need to read the serial port's serial handshake signal status.

The Table on the right is the current SCPI chart for the 4896 and was taken from revision 3 of the 4896 manual. The table is similar to the SCPI chart in he revision 2 manual except that it includes the five previously undocumented commands for controlling and querying the serial handshake signals and the new RS485 command. The undocumented commands are at the same level as the SYSTEM keyword.

The undocumented commands and their definitions are:

Keyword	Description
CTS?	Querys the CTS input signal status
DCD?	Querys the DCD input signal status
DSR?	Querys the DSR input signal status
DTR	Sets the DTR output signal level if there is no data in the transmit buffer and the 4896 is not transmitting serial data. Values are 0 and 1.

TABLE 3-2   4896 SCPI COMMAND TREE

Keyword	Parameter Form	Notes
SYSTem		
:COMMunicate		
:SERial		
[:RECeive]		
:BAUD	<numeric value> [9600]	
:PARity	[NONE] | ODD | EVEN	
[:TYPE]	[NONE] | ODD | EVEN	
:CHECk	[OFF] | ON	
:BITS	7 | [8]	
:SBITs	[1] | 2	
:PACE	[NONE] | ON	
:RS485	[OFF] | ON	
:SIG?		Query
:EOMchr	0-255 [13-CR]	
:ADD		
:CHARacter	0-255 [10-LF]	
:ENABle	[OFF] | ON	
:EOI	[OFF] | ON	
:ECHO	(OFF) | ON	
:LOOPback	(OFF) | ON	
:TRANSmit	OFF | (ON)	
:EXTclk	(OFF) | ON	
:BUFFer?	0-53248 (0)	
:GPIB		
:ADDRess	0 - 30 [4]	
:BUFFer?	0-53248(0)	
:BUFSize	<numericvalue>[32]	
:ERRor?	(0, "No error")	
:VERSion?	(1994.0)	
:DISPlay		
:SELEct	(1)-19 |40 | 50	
:CREATe	message 32 char max	
CTS?		Query
DCD?		Query
DSR?		Query
DTR	0 | 1	
RTS	0 | 1	

Keyword	Description
RTS	Sets the RTS output signal level if there is no data in the transmit buffer and the 4896 is not transmitting serial data. Values are 0 and 1.

COMMAND PRECAUTIONS

The undocumented commands were designed for testing the serial interface under static conditions. The commands let the technician toggle the DTR and RTS signals and read back the state of the CTS, DSR and DCD signals. To checkout a the serial port on a 4896, a test connector with RTS-CTS and DTR-DSR-DCD jumpers is first plugged into the 4896's serial connector. Next, the undocumented RTS and DTR commands are used to toggle the handshake signals and the results are read back with the CTS?, DCD? and DSR? queries.

However, when the 4896 transmits serial data, it automatically controls the signals on the serial interface. The undocumented DTR and RTS commands should not be used while the 4896 is transmitting data. Changing the status of the handshake signals could cause either the 4896 or the other serial device to not receive or transmit serial data. Secondly, while transmitting data, the 4896 will override the affect of the DTR and RTS commands, making the result of the commands very unpredictable. The user can use the commands to set or reset the handshake lines while the 4896 is not transmitting data.

RS485 COMMAND

Model 4896s with revision 0.5 and later firmware have had the capability to tristate their serial RS-485 drivers when the unit was not transmitting. The RS485 command was added to disable the tristate function when the 4896 is used in a full-duplex network. The factory default is RS485 OFF. The RS485 command has to be set to ON to activate the automatic tristate function.

APPLICABILITY

4896s with revision 13 and earlier firmware only respond to the DTR and RTS commands. 4896s with revision 14 or later firmware include the CTS?, DCD? and DSR? queries. Firmware revisions 0.15 and 0.16 fixed problems with the ADD:ENABle and BUFFer size commands. If the firmware in your unit is 0.5 or later, contact ICS's customer service department to request a firmware upgrade to revision 0.16 and a current manual.

SUMMARY

This application note has described five previously undocumented 4896 commands that affect the handshaking signals on the 4896's serial ports. Some 4896 users may be able to use these commands to signal other devices and to control the flow of serial data. Anyone using these commands should recognize their restrictions and not attempt to set the handshake lines during a data transmission.