Linux and Digiquartz® Pressure Instruments

Paroscientific, Inc.
4500 148th Ave. N.E.
Redmond, WA 98052, USA
Tel: (425) 883-8700 Fax: (425) 867-5407
www.paroscientific.com
support@paroscientific.com

Digiquartz®
Technology

"The standard by which other standards are measured"

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By
Mustafa Yilmaz
support@paroscientific.com

Introduction

According to a recent survey by *InTech magazine*, the Linux operating system is gaining ground in the Test and Measurement World. While 7% of surveyed engineers currently use Linux for test and measurement purposes, in the next 12 months, 14% of surveyed engineers plan to use Linux for day-to-day test and measurement applications.

According to *Business Week Magazine*, Linux currently holds 14% of the server market and 2% of the desktop market. We predict that the use of Linux in the measurement world will eventually climb due to its stability and open source nature.

Due to growing market demand, National Instruments recently released a Linux version of the LabView™ programming environment.

The purpose of this document is to acquaint users of Digiquartz® Pressure Instruments with the new, emerging Linux operating system and provide a list of tools which can be used to communicate with Intelligent Digiquartz® Pressure Instruments from the Linux Operating System.

Digiquartz® Pressure Instruments have two types of output signals: Frequency outputs and Intelligent Outputs. Digiquartz® Pressure Transducers provide frequency outputs which cannot be directly interfaced with a PC without a frequency counter having a digital interface. These transducer interfaces are available from Paroscientific as Intelligent Electronics cards and the Model 735 Digiquartz® Intelligent Display. Please contact our sales and application engineers either at support@paroscientific.com or (425) 883-8700.

Digiquartz® Intelligent Instruments combine a Digiquartz® Pressure Transducer with embedded electronics that can directly interface with PCs or data logging systems and process controllers via RS-232 or RS-485 interfaces. This document covers the available communications options for any Digiquartz® Intelligent Instrument with an RS-232 interface. If you would like to use a frequency output transducer to interface with a PC, the most reliable and cost effective way is to use optional Digiquartz® Intelligent Electronics card or the Model 735 Intelligent Display.

To communicate with Digiquartz® Intelligent Instrument, connect your instrument to the RS-232 port of your Linux computer.

You can use any program that can access your serial ports from Linux to talk to a Digiquartz® Instrument. Paroscientific does not provide customized software for Linux users. The LabView sample code on Paroscientific's website, http://www.paroscientific.com/software.htm, can be used in the LabView environment. This code requires a copy of the LabView program on your computer and also knowledge of LabView programming.

Due to the open source nature of the Linux operating system, there are also free programs that you can download and use to communicate with a Digiquartz® Intelligent Instrument.
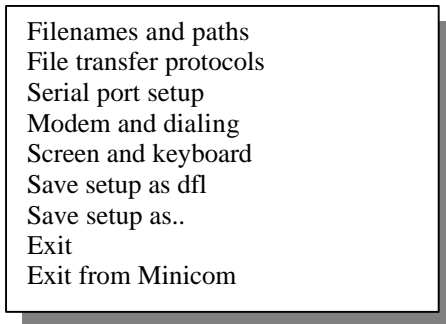
The most prominently known programs for RS-232 communication in the Linux world are MINICOM and SEYON.

This document only includes information on how to configure and use the MINICOM software. Detailed information on *SEYON* can be found at http://ftp.mayn.de/pub/irix/oldstuff/freeware_5.3/ relnotes /seyon.html

MINICOM is a serial communications program resembling the DOS TELIX program. The features include a dialing directory with auto-redial, support for UUCP-style lock files on serial devices, a scripting language with an interpreter, capturing to file, and multiple users with individual configurations.

MINICOM is a terminal-based, menu-driven program. To establish communication with a Digiquartz® Intelligent Instrument, please follow the following steps.

   a. To start MINICOM, open a new console window (terminal) in Linux.
   b. Type "MINICOM" in the console window. If you would like to start MINICOM with a saved configuration file type "MINICOM –o (name of your configuration file)". This will restore your previous communication settings. The –o in the command line represents the character key "o".
   c. After MINICOM initializes, press the "Ctrl" and "A" keys simultaneously. This brings up a bar at the bottom of your screen. Press the "Z" key to access the main menu.
   d. In the main menu, press the character key "O" to configure the MINICOM. You will see the following menu items.

> Filenames and paths
> File transfer protocols
> Serial port setup
> Modem and dialing
> Screen and keyboard
> Save setup as dfl
> Save setup as..
> Exit
> Exit from Minicom

Select the "Serial port setup" option to choose your comport, baud rate, parity etc.

IBM PC	Linux kernel
COM1:	/dev/ttyS0
COM2:	/dev/ttyS1
COM3:	/dev/ttyS2
COM4:	/dev/ttyS3

The comports have different names in Linux.   The table above shows a summary of the comport acronyms. Please also make sure that "Hardware Flow Control" is set to "No" since Digiquartz® Instruments don't use handshaking.

   e. Having completed the communication setup, go back to the main menu by pressuring the "Ctrl Z" and then "A" key. This brings up the main menu on the screen. Press the "M" button to initialize the modem. This should make your connection to the Digiquartz® Instrument. At this point, type "*9900VR" command to see the available instrument(s) connected to your PC.

A free copy of the MINICOM program is available at http://www.linuxdoc.org (the official Linux documentation site). Paroscientific does not provide support for MINICOM or SEYON programs. If you purchased a commercial version of the Linux operating system (Red Hat, Debian etc.), there may already be a terminal program that came with your operating system. Please check your operating system documentation.

Important Links for Linux Users

a. If you are a beginner in Linux and would like to have access to different articles about Linux, please see http://www.linux.ie/newusers/beginners-linux-guide/

b. If you ever wonder how to do a specific item, please check the HOW-TO Index at http://www.tldp.org/HOWTO/HOWTO-INDEX/

c. Linux gets support from many volunteers. There is a worldwide documentation project currently active to provide support to the Linux community. There is significant amount of information organized at this site under different headings. Please check http://tldp.org/ to access the online Linux documentation.

d. If you are looking for free software for Linux, drivers, games, applications etc., please see the **Linux Archives** site at http://www.linuxarchives.com/. You can also download a free copy of the Linux Kernel from this site.

e. If you need a comprehensive list of Linux software, you can review that at the Linux Software Encyclopedia site at http://stommel.tamu.edu/~baum/linuxlist/linuxlist/linuxlist.html .

f. If you would like to run some of the software written for Windows under Linux, you need to install the Wine HQ first. Please review the material at http://www.winehq.com/.