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APPLICATION BULLETIN

WAYNE KERR SCREEN CAPTURE UTILITY
Using ICS's 488-USB GPIB Controller

INTRODUCTION

This application note describes a Screen Capture Utility program developed by the Wayne Kerr Electronics to give their users a quick way of recording instrument data. ICS's 488-USB GPIB Controller was selected as an economical way to control GPIB Instruments from newer computers that support the USB Bus.

OVERVIEW

The Screen Capture Utility allows screen information from Wayne Kerr 3260, 3255,, 6430, and 6440 series instruments to be captured using the Screen Capture Utility. Once captured, the screen image may be saved as a .bmp file or copied to the Windows clipboard for processing using other graphics applications. An option may be set which prompts the user to save the image as a file each time the screen is captured. The saved images can be recalled for later viewing.

The Screen Capture Utility also gives the user complete control of the instruments over the GPIB bus. GPIB commands may be sent to control an instrument or to trigger it to take a reading. Queries (?) generate an automatic read back from the instrument with all responses displayed as received from the instrument. An option allows the screen to be automatically captured each time the instrument is read.

The USB version of the Screen Capture Utility requires an ICS Electronics 488-USB controller to be used as the GPIB Controller. The 488-USB plugs into the GPIB connector on the instrument and connects to the PC via any open USB bus port. The 488-USB Controller was chosen as being a more cost effective solution and an easier installation than installing a GPIB Interface Card inside the PC. The 488-USB Controller also provides a longer cable than those supplied with PCMCIA cards.

REQUIRED HARDWARE AND SOFTWARE:

The Screen Capture Utility supports the following Wayne Kerr instruments:

Precision Magnetics Analyzers
PMA3260A All Versions
PMA3260P All Versions
PMA3260B All Versions

Inductance Analyzers
IA3255A All Versions with GPIB option fitted
IA3255B All Versions with GPIB option fitted

Precision Component Analyzers
6430A All Versions
6440A All Versions

The Screen Capture Utility runs on an IBM compatible PC with a full-speed or high-speed USB port. The utility supports the following Windows operating systems:

Microsoft Windows 98 (Second Edition)
Microsoft Windows Me
Microsoft Windows 2000
Microsoft Windows XP

Using the Screen Capture Utility

Getting Started

Follow the directions provided by Wayne Kerr and ICS Electronics to Install the Screen Capture Utility and 488-USB driver software on the computer. Before starting the application connect the ICS 488-USB to the Instrument and to the USB port of the PC and switch on the Instrument. From the Windows 'Start' menu select 'Programs'. Select 'WK USB

Screen Capture' to run the utility. When the utility starts, it searches the GPIB bus for instruments. The first Wayne Kerr instrument found will be used by the utility and its identification string will be displayed in the **Response** window. The GPIB address of the instrument will appear in the **User Information** panel at the bottom of the form. The user can select another instrument if there are multiple instruments on the bus.

Controlling an Instrument

GPIB commands may be sent to the instrument by entering the commands into the **GPIB Command** window and using either the **Send** button or terminating the string with the 'Enter' key. The Screen Capture Utility does not perform any syntax checking prior to sending the commands. To interrogate the instrument use the **Read** button. The data returned from the instrument will be displayed without formatting except that any commas found will generate a line feed. If the **Automatic Read** check box is selected then the instrument response from query ("?") or the trigger (":TRIG") commands will be read automatically. If the **Trigger Command** check box is selected then the string ":TRIG" will be sent every time the **Send** button is selected.

Capturing an Instrument Screen Image

To capture an instrument screen image simply select the **Capture** button. During the downloading of the image data a progress bar will be displayed. Once the download has been completed select 'File' followed by 'Save As' to store the image as a bit map file. To automatically store a captured screen image ensure that the **Always Save** check box has been selected prior to capturing the screen image. Captured screen images may be copied to the Windows clip board by selecting 'Edit' followed by 'Copy'. A previously saved screen image may be loaded into the captured image window by selecting 'File' followed by 'Open'.

Run Time Errors

If the PC cannot find the 488-USB controller when the utility launches then run time error 'File not found: GPIB-32.DLL' will be displayed. This means that the 488-USB was not enumerated and the user should check the following items:
1. Connections from the controller to the USB port of the PC.
2. Verify that the file GPIB-32.DLL is present in the c:\windows\system or c:\windows\system32 directory.
3. The controller should be listed in the USB section of the Windows Device Manager. If it is not present then it is not connected to the USB bus or has not been installed correctly. If it is marked with a yellow exclamation mark, check its properties and let Windows find the driver and enumerate the 488-USB.

If the utility cannot find an instrument it will display a 'No instruments found' message. This error may occur due to the instrument being turned off, faulty or not connected to the 488-USB controller. The utility program will abort after the error has been acknowledged. The error can also occur when the connection to the instrument is lost or the instrument develops a fault. The utility will try and reestablish connection to the instrument prior to disabling the **Send**, **Read** and **Capture** buttons.

REFERENCE DOCUMENTS

More information about the Wayne Kerr Screen Capture Utility and the program itself may be obtained from the Wayne Kerr website at http://www.waynekerrtest.com/ You may also contact the following sales offices:

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SUMMARY

This application note has described an instrument control and data capture program put together by a leading instrument manufacturer using ICS's 488-USB GPIB Controller. Please address all questions about the Screen Capture Utility program to Wayne Kerr.