

COMMON SCALE INTERFACE (CSI)

QUICK REFERENCE MANUAL

P/N: H003259 (ELECTRONIC MANUAL)
Revision 1



Serving Metrology Worldwide



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Conventions

The following conventions are used in this manual to distinguish between various kinds of information.

Note: Notes give important information taken from the text, which may be useful in ensuring that the equipment is used to its full potential.

CAUTION

Caution messages indicate potential damage to the equipment or loss of data and tell you how to avoid the problem.



WARNING

Warning messages indicate the potential for bodily harm and tell you how to avoid the problem.

1. Safety Information

**W A R N I N G**

All the operations described in this document for which you are responsible must be performed in accordance with the national and company safety regulations.

The standard CSI may present a shock hazard if water or other liquids are allowed to enter the unit. This is an electronic device. As with any electronic device standard safety precautions should be observed when connecting or disconnecting system cables. Please see your specific CMM system user manual for supplemental information.

2. Introduction

This “Quick Reference Manual” is not intended to describe all the functionality that the CSI supports. Please see the CSI Users Manual (part #H003145) for complete information or for troubleshooting if any errors occur while using the CSI with PC-DMIS. The usage information in this document assumes that the CSI and host PC have already been configured to use the CSI box with PC-DMIS. That is, the encoder signals for the CMM have already been “auto tuned” using the CSI, and software support for PC-DMIS to interface to the CSI hardware has already been installed on the PC.

3. Components

Common Scale Interface (CSI)

Main CSI Box

V-Infinity Power Supply (15V/4.0A)

Earth Ground Adapter

Hand Switch with built in speaker

Required Cables

CMM specific cabling to connect to the X,Y,Z, and probe inputs on CSI box

Standard USB Cable with Type A/B connectors (connects from USB HOST port on CSI to PC's USB port)

Optional cables for connecting to Hyperterminal (as described in the full CSI User Manual)

- Second USB Cable with Type A/B connectors (if connecting to USB service port)
- RJ11 to Female DB-9 connector (if using standard COM port on PC to connect to CSI with hyperterminal)

4. Basic CSI Usage

Getting Started

The use of the CSI is strictly for operational use and is not considered a repair device for a substandard machine. Please be sure that the machine to be used with the CSI is in good operating condition to minimize problems.

1.1 Connect CSI to Machine.

The CSI comes with an AC/DC converter power supply and an earth ground adapter. Attach the CMM earth ground wire to the earth ground adapter, and attach earth ground wire from stud on the rear panel of the CSI box to the earth ground adapter. Do not power up at this time.

Connect machine adapter cable (CMM encoders to CSI inputs) if supplied. Attach all machine cables to the designated connectors on the back panel of the CSI box (see Figure 2 and 3) and fasten securely. Do not attempt to attach cables from the CMM to the CSI if the interface connections are not compatible. This can void warranty of the product. If termination to the machine requires modification, a Hexagon Metrology representative should be contacted for a service technician to do this type of work.

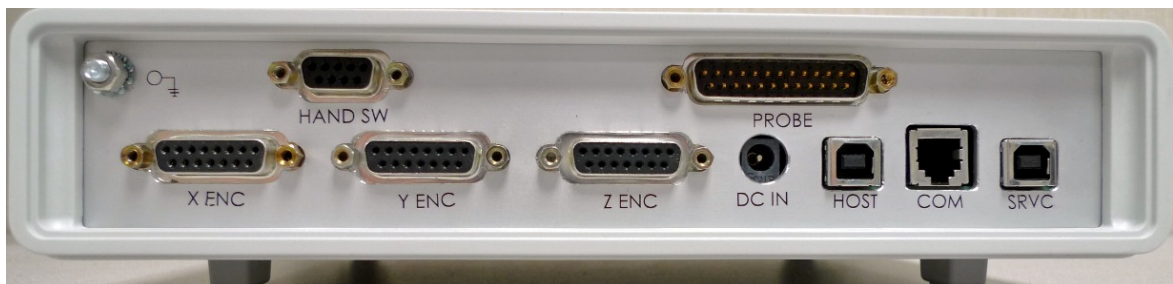


Figure 2. Rear of the CSI box. Connect CMM cables to designated connectors prior to powering on the CSI box.

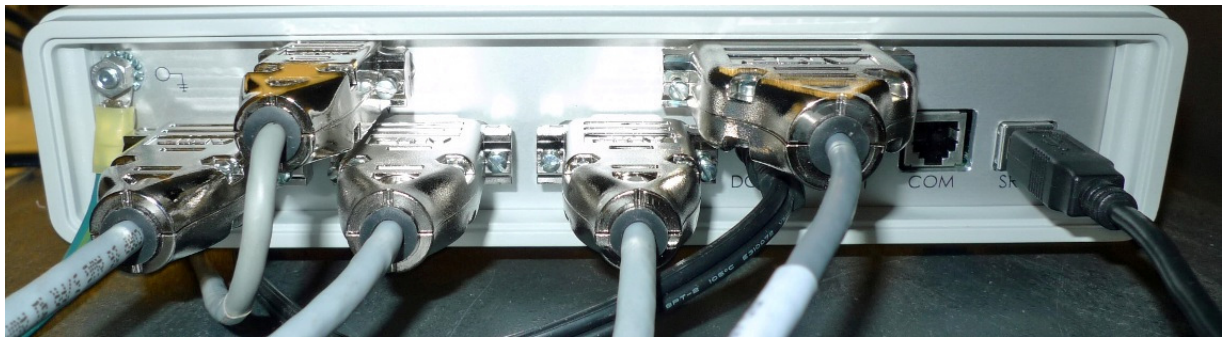


Figure 3. Rear of CSI box with cables connected. USB service cable (far right) is connected in this photo but is only required if using command interface described in the CSI Users Manual.

1.2 Setup CSI

Set the CSI unit on a sturdy workstation table near the PC-DMIS host computer. Be sure that the attached machine cables or power and ground wires are not over extended or cause the unit to be pulled or slid off the table.

Powering On the CSI

Prior to powering on the CSI, make sure that you have followed instructions from the “Getting Started” section. Verify that the cables are connected to the correct inputs (X axis cable is connected to X input, etc.). Connecting the USB cable between the CSI “HOST” port and PC is optional at this point. It may be connected later or you may connect it now.

CAUTION

The 2 buttons on the front of the CSI (tune and test) should not be touched during power up or after powering up unless an auto tune of the encoders is required (described in the CSI Users Manual). If the CSI has already been tuned for the CMM being used, then there is no need to use these buttons. Pressing either button for less than 1 second will not have any effect when the CSI is powered up normally. However if the tune button is pressed/held for more than one second (until the LED's turn blue) then the CSI will be placed into “Tune Mode”. If the “Test” button is pressed/held for >5 seconds then the CSI will be placed into “Test Mode”. See the Users Manual for details on tune and test modes. If the tune button is accidentally pressed/held for more than one second and the CSI enters a tune mode (one or more of the LED's is blue) you may power off the CSI box BEFORE touching the tune button again, then on next power up the LED's should be green and the CSI is in normal operating mode. You may also exit “test mode” by powering the CSI off/on.



Figure 4. Front of the CSI box. Power switch is located on the far left. Photo is with the power switch in the “Off” position.

With the CSI power supply now connected to the power input (“DC IN” connector) on the back of the CSI box, the switch on the front of the CSI box can be used to power on/off the unit. The switch will light up when the unit is powered on (Figure 5). Flip the switch on now to power on the CSI and verify the switch light turns on. If it does not turn on, verify the power supply is plugged into an outlet and the DC input to the CSI is properly connected. The LED’s (X,Y, and Z) on the front panel should normally be lit green or yellow (assuming auto tuned has already been done for the CMM being used).



Figure 5. CSI powered on. The X,Y, and Z LED colors are dependent on the last “Auto Tune” operation that was performed.

Running PC-DMIS With CSI

This section is not intended to describe the complete operation of PC-DMIS, but rather just covers a few important functions that are specific to using the CSI hardware with PC-DMIS.

If you have not already connected a USB cable from the CSI port labeled “HOST” to the PC, then do that now. As discussed in the CSI User Manual, you may get a “Found New Hardware” message from Windows if this is the first time the CSI has been connected to this USB port on the PC. In that case, install the USB driver as described in the manual.

Start PC-DMIS as you would normally. The following message is displayed each time PC-DMIS is started when using CSI:

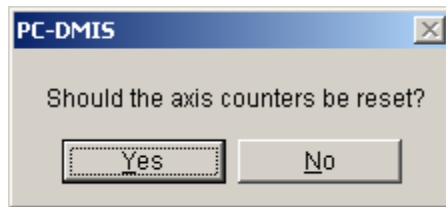


Figure 9. “Axis Counters Reset” query message from PC-DMIS when first started up.

NOTE: Make sure that when PC-DMIS is started the touch trigger probe is not deflected (if using a touch trigger probe). The reason for this is that the CSI interface software automatically detects if a “touch trigger probe” or a “hard probe” is attached when PC-DMIS is started up and configures its data acquisition method (for latching data on probe hits) based on whether a hard probe or touch trigger probe is being used. If a touch trigger probe is deflected when PC-DMIS is started then it will appear as if a hard probe is being used which will result in the CSI interface incorrectly configuring data latching method.

Also note that if using a touch trigger probe the red LED on the probe will only turn off/on when probe is deflected/released when PC-DMIS is running and has successfully initialized the interface to the CSI hardware. The initialization occurs after the axis counters reset message (Figure 9) has been cleared. This is because the CSI software that interfaces PC-DMIS to the CSI hardware controls the probe LED.

Resetting the Axis counters is only necessary if they have not been reset previously. Note that if the CSI box has been powered off since the last time the axis counters were reset, then they **MUST** be reset again. Choose yes to continue with the counter reset or no if you do not need to reset them.

Selecting “Yes” will bring up the message in Figure 10. Note that with CSI hardware (not the case with the XnPCI card) it is necessary to first move to home position, then select ok, then move **AWAY** from the home position in order to complete the axis counter reset.

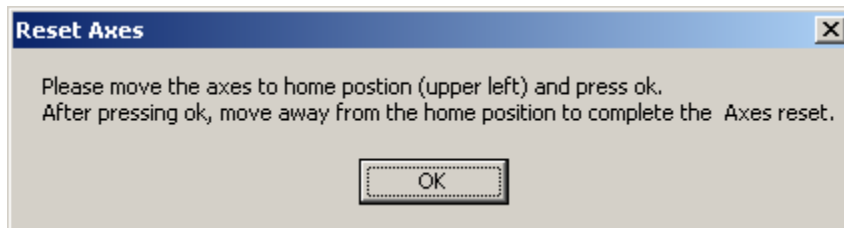


Figure 10. “Reset Axes” prompt instructing user on sequence of steps to reset the axes.

CAUTION

Make sure to follow the sequence exactly as described in the message displayed in Figure 10. If the axes are moved away from the home position and then “OK” is selected, the “Home” position will be incorrect. Be sure to select “OK” while the axes are in the home position, then move away to complete the axes reset.

After moving all axes away from the home position the message below is displayed (Figure 11). **Until this message is displayed, the axis counters will not be reset and PC-DMIS will not be able to read the axis position.** Reset should complete immediately after moving away from the home position. Make sure you move ALL 3 axes away from their respective home position in order for the reset to complete.

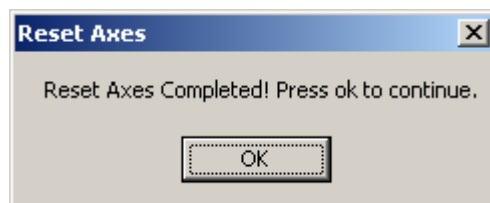


Figure 11. “Reset Axes” completed successfully message.

Assuming the reset completes successfully, select “Ok” to continue. PC-DMIS is now able to use the CSI for taking measurements. Figure 12 shows an example of the screen that appears after selecting ok to continue. If any of the 3 axes are moved at this point, the X, Y, and Z position values at the bottom of the screen should change for the axis that is being moved. **If the values are not changing when moving the axis then it is recommended to exit PC-DMIS, power off/on the CSI box, then restart PC-DMIS and repeat the axes counters reset.**

If there are any problems getting to this point please see the full “CSI Users Manual” to attempt to resolve the problem.

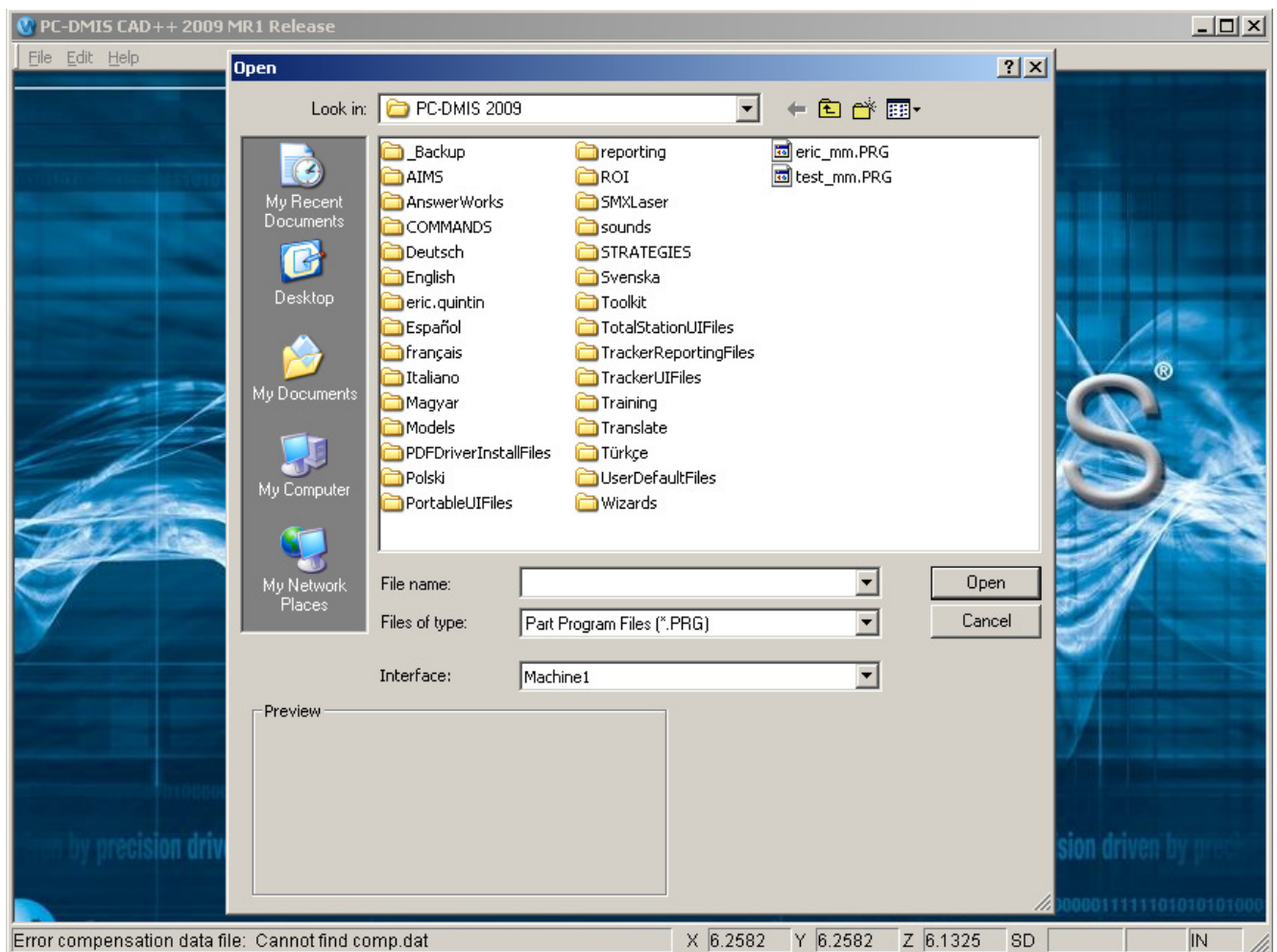


Figure 12. Example of PC-DMIS screen that is displayed after completing axes reset.