

**NUM 1060 SI/SII/USCII
NUM 1020
NUM 1040
NUM 1050**

NUM INFORMATION

US N° 113 1/3

Date: Nov. 16, 00

NUM 10xx Series CNC Backup/ Restore Procedures Using Machine Manager (PLCTools)

Scope: The NUM 10xx Series CNC system has essential application specific files stored in various locations within the system. [\(See US117 – 10xx Series System Memory Map.\)](#) It is important to periodically backup this system memory to prepare for data loss due to system failures.

The purpose of this document is to provide the user with a detailed step-by-step procedure for setting up the RS-232 communication link from the PC to the CNC and downloading/uploading the individual files necessary for a backup/restoration of the CNC.

**** NOTE**** This software package cannot download/restore files from the macro zones 1, 2, or 3. These files will have to be transferred to/from Zone 0 via Utility 3 (Resident Macros – See Operator Manual 938822 or 938821 Sect. 8.8) to be downloaded/restored or another software package such as NUMBackup or NUMCOM will have to be used.

Datum offsets (shifts), tool-wear offsets, and E8xxxx parameters are also not supported. NUMBackup is the only package to support backup of these files.

1. **RS-232 cable diagrams:** [\(See US112 – Communication Cables for Use with NUM CNC's and NUMDrive products\)](#)
2. **Set up communication link on CNC.** [\(See US 116 - Procedures For NUMTools Communication Setup On CNC\)](#)
3. **Set up communications on PC**
 - a. Run Machine Manager
 - b. From menu toolbar click on Options → Transfer.
 - c. Select Baud, Bits, Parity and Stop to match word N1 of parameter P112.
 - d. Select communication port from PC.
 - e. PC is now set up for communication.
4. **Backup Procedures**
 - Following steps (4a.) through (4g.), will create a full Machine Manager system backup

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*** NOTE **** If a communication error occurs (no communication), Click on OK, and in upload window click on Cancel. Double check steps 1-3 to ensure everything is setup correctly. If it is try another communication serial port on the CNC and change P112 accordingly. If a communication problem still exists try another serial port on PC and redo step 3. If problem still exists, there may be a possible communication port conflict on the PC or faulty hardware on the PC or CNC.

a. Create a Group

- 1). Create a Group in Machine Manager (PLCTools) *.MCH. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.1.

b. Machine Parameters

- 1). Create Parameter Module in Machine Manager (PLCTools) *.XPA. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.2.
- 2). Single click on file (to highlight) that was just created.
- 3). From menu toolbar click on Transfer → (NC → PC).
- 4). Click on transmit.

c. PLC archive (binary backup of PLC)

- 1). Create Archive Module in Machine Manager (PLCTools)*.XAR. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.2.
- 2). Single click on file (to highlight) that was just created.
- 3). From menu toolbar click on Transfer → (NC → PC).
- 4). Click on transmit.

d. PLC ladder files (Individual PLC ladder modules)

- 1). Create Ladder Module in Machine Manager (PLCTools) *.XLA. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.2.
- 2). Single click on file (to highlight) that was just created.
- 3). From menu toolbar click on Transfer → (NC → PC)
- 4). Click on transmit.
- 5). Do this for as many ladder files exist on CNC.
- 6). To find out list of ladder files:
 - a). Press F10.
 - b). Type 5 and <enter> for Ladder animation.
 - c). Write down all modules that exist.

e. Part Program files

- 1). Create Pieces Module in Machine Manager (PLCTools) *.XPI. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.2.
- 2). Single click on file (to highlight) that was just created.
- 3). From menu toolbar click on Transfer → (NC → PC).
- 4). Click on transmit.
- 5). Do this for as many part program files that exist on CNC.

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- 6). To find out list of part program files:
 - a). Press F3.
 - b). Type %% and <enter> for List of part programs.
 - c). Write down all part programs that exist.

f. C code modules

- 1). Create C sector Module in Machine Manager (PLCTools) *.XCX. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.2.
- 2). Single click on file (to highlight) that was just created.
- 3). From menu toolbar click on Transfer → (NC → PC).
- 4). Click on transmit.
- 5). Do this for as many C sector files exist on CNC.
- 6). To find out list of C files:
 - a). Press F11.
 - b). Type 0 and <enter> for Access to utility programs.
 - c). Type 7 and <enter> for PLC Ladder Programming (UTILITY 7)
 - d). Type F and <enter> for File management.
 - e). Type A and <enter> for Application directory.
 - f). Press <enter>.
 - g). Write down all modules that exist.

g. Axis Calibration table file

- 1). Create Calibrations Module in Machine Manager (PLCTools) *.XCA. See PLCTool Ladder Language Programming Tool Manual (938859) Sect. 6.2.
- 2). Single click on file (to highlight) that was just created.
- 3). From menu toolbar click on Transfer → (NC → PC).
- 4). Click on transmit.

5. Restore Procedures

a. Full restoration

- 1). Single click on any module to be downloaded.
- 2). From menu toolbar click on Transfer → (PC → NC).
- 3). Select from Range pull-down menu → A group
- 4). Click on transmit.

b. Individual file restoration

- 1). Single click on module to be downloaded.
- 2). From menu toolbar click on Transfer → (PC → NC).
- 3). Select from Range pull-down menu → A module
- 4). Click on transmit.