The UniDataExchanger

The UniDataExchanger is a tool that allows an easier handling of the file transfer to and from UniOP operator panels. The program supports the transfer of recipe data and UniOP firmware files.

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1. Introduction

The UniDataExchanger is a stand-alone tool not included in the standard Designer software and developed to easily handle file transfers to and from UniOP operator panels.

Recipe data stored in the UniOP memory can be uploaded to a CSV file format; the file can be stored for archival purposes or can be easily modified and later downloaded again to the panel memory.

Also, UniDataExchanger supports the firmware upgrade of the panels and the transfer of project files without the need of the Designer software. Using the files generated by Designer in binary format (ROM Format), UniDataExchanger can transfer them the UniOP project memory media.

To install UniDataExchanger, just copy the files to an empty directory; to start the program locate the file “UniDataExchanger.exe” and run it.

The current version of the UniDataExchanger software is 1.2.

The UniDataExchanger main window is shown in Figure 1.

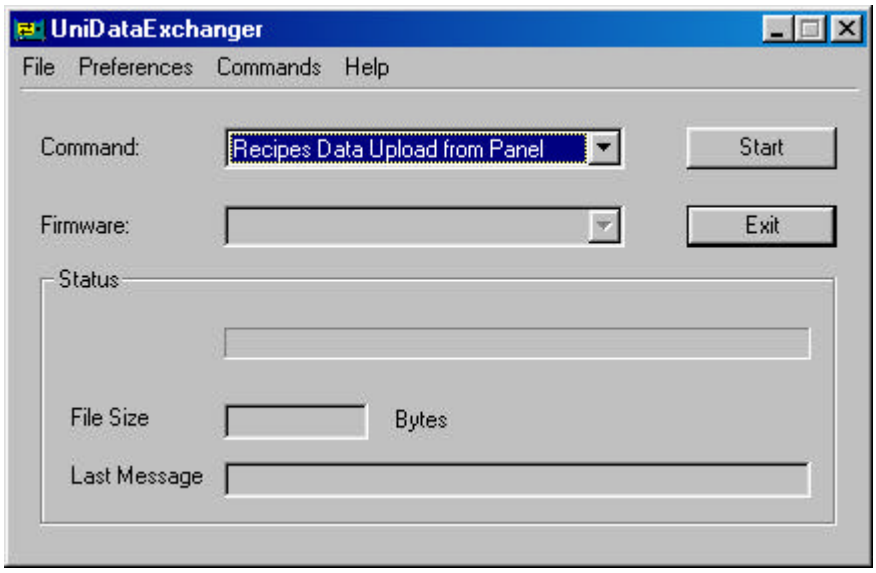


Figure 1

2. Using UniDataExchanger

The UniOP Firmware is divided in two parts: one is called **Boot,** the second one is called **Firmware**. The Boot part support only the basic functionality of the panel and it is not sufficient to run a Designer project.
The Boot version present in one panel is visible switching the panel to Configuration Mode and holding the Enter key pressed for one second: the first information line will show the Boot version.

The Firmware part is the real "engine" and it handles most of the functionality of the product. "Upgrading the firmware" in a panel usually means to change only the second part (the Firmware), but in some specific cases it will required also replacing the Boot.

The "Command" list box allows you to select the operation type.
The "Firmware" list box specifies the firmware type of the target operator panel.
UniOP panels can be organized in several different classes depending on the firmware type.
Current UniOP firmware can be divided into 6 classes:
?? Firmware Type 32
?? Firmware Type 33
?? Firmware Type 37
?? Firmware Type 38 – Boot 38
?? Firmware Type 38 – Boot 39
?? Firmware Type 58
The information regarding the Firmware Type is always available in the panel identification label present in the back cover of each operator panel.
The Firmware Type is indicated in the ID label as "S/W V. …".

The operator panels of the type FW38 can be equipped with two different CPU boards. Due to some differences in the hardware, the newer CPU board does not support Boot type 38, but a different one called **Boot 39**".

Panels using Boot 38 and Boot 39 machines are both operating with the same **FW type 38**.

The panels can be recognized from the label on the rear:

Boot 38 + Firmware 38	hardware **38A**
Boot 39 + Firmware 38	hardware **38B**

Note: *UniDataExchanger can connect to a panel only if it is in Configuration Mode.*

The Firmware files are normally stored using a naming convention as described in Table 1.

Hardware Type	Firmware Type	Boot Filename	Firmware Filename
33A	32	FWT3BL32.BIN	FWT3DL32.BIN
33A	33	FWT3BL33.BIN	FWT3DL33.BIN
33A	37	FWT3BL37.BIN	FWT3DL37.BIN
38A	38 with Boot Type 38	FWT3BL38.BIN	FWT3DL38.BIN
38B	38 with Boot Type 39	FWT3BL39.BIN	FWT3DL38.BIN
58A	58	FWT3BL59.BIN	FWT3DL58.BIN

Table 1

The Hardware Type information is reported in the Product ID Label on all panels.

Note: *UniDataExchanger cannot download the firmware files in the format prepared for use by Designer (long filename).*

Note: *UniDataExchanger does not support transfer of firmware files to SSFDC memory media.*

2.1 UniDataExchanger Menu

The “Preferences” Menu contains some general settings of the program.

The “CommPort” item allows the definition the COM port of the computer used to connect to the panel.
The communication cable is the standard CA2 or CA114. This menu is shown in Figure 2.

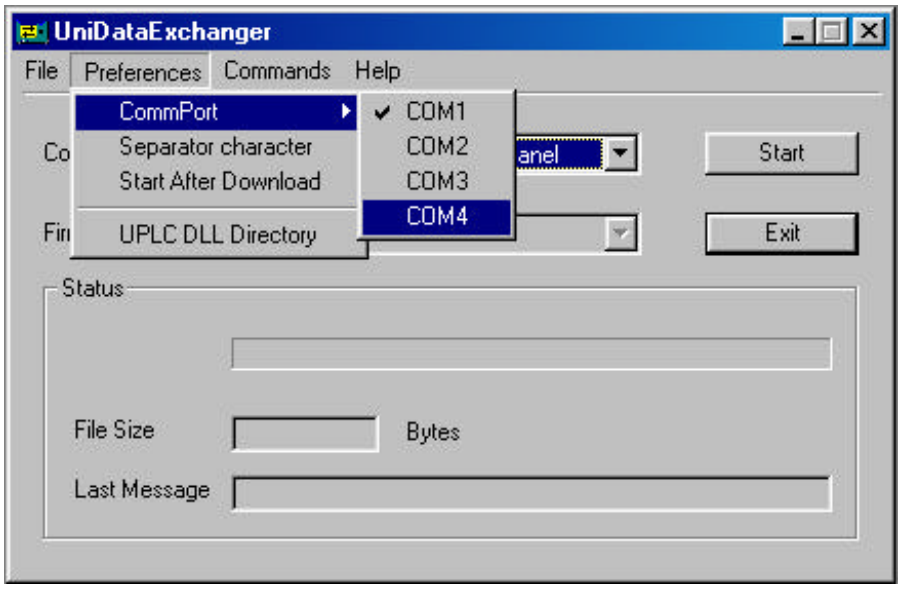


Figure 2

The “Separator Character” entry allows defining the character used as a separator when preparing the recipe data file in CSV format. Figure 3 shows the “Define Separator character” dialog box.

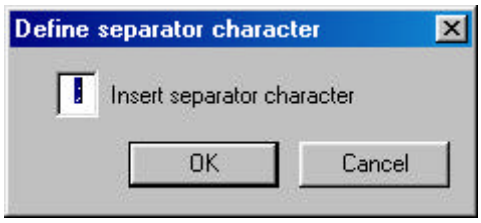


Figure 3

The “Start After Download” option defines if a start command must be sent to UniOP panel after a file download.
It is the option equivalent to the one available in the Designer “Transfer/Option” dialog.

In order to properly upload Recipe Data Items from the panel and displaying the addresses of the data items, UniDataExchanger needs the reference to a directory where the Designer D32UPLCxxx.DLL files are installed.

The “UPLCDL Directory” entry in the “Preferences” menu may be used to specify where the Designer D32UPLCxxx.DLL files are located in the computer.

If the computer running UniDataExchanger does not include Designer, the information included in the CSV file could not be completed.

2.2 Handling Recipe Data

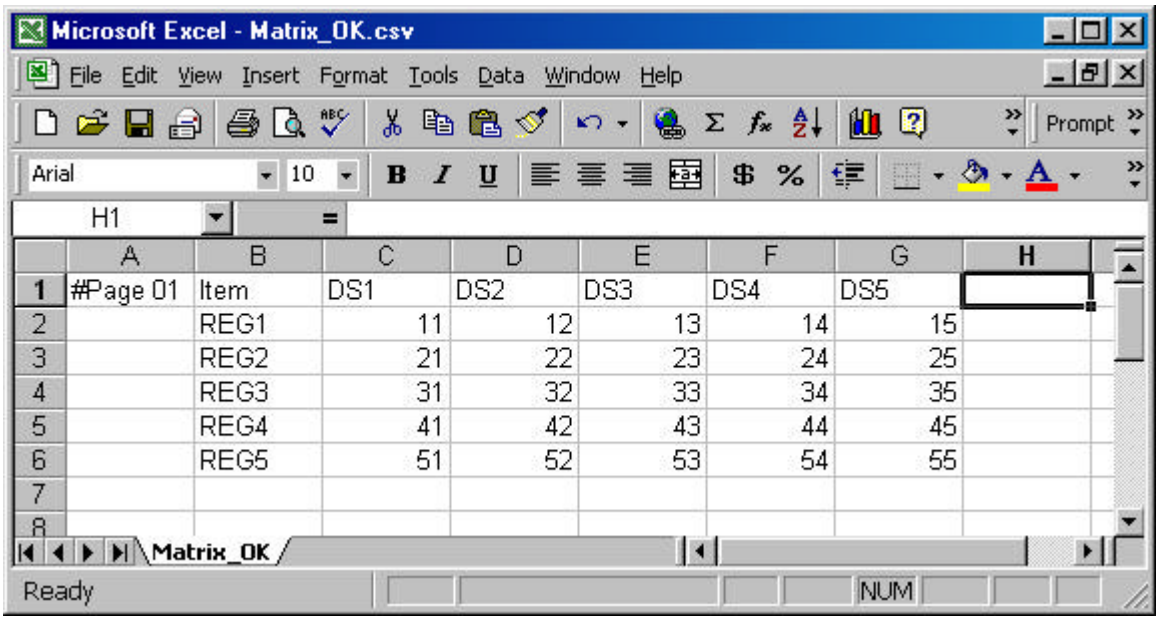
Recipe data is uploaded from the RAM memory storage in the panel; this means that if the user has already changed the recipe default values defined in the Designer project, the upload process retrieves the changed values.
Recipe data is downloaded to the RAM memory storage in the panel.

Note: *Recipe data handling with UniDataExchanger is supported by UniOP firmware version 4.44 and higher.*

2.2.1 Upload

From the “Commands” list box select the “Recipe Data Upload from Panel” and click the “Start” button.
The UniDataExchanger will prompt you for a target directory where the CSV files has to be stored and for a filename.

An example of the result is shown in Figure 4; the example is made using the Modbus Slave communication driver. The Recipe Data is configured in Page 1, there are 5 recipe variables and 5 parameter sets.



	A	B	C	D	E	F	G	H
1	#Page 01	Item	DS1	DS2	DS3	DS4	DS5	
2		REG1	11	12	13	14	15	
3		REG2	21	22	23	24	25	
4		REG3	31	32	33	34	35	
5		REG4	41	42	43	44	45	
6		REG5	51	52	53	54	55	
7								
8								

Figure 4

Microsoft Excel can support a maximum of 256 columns. This it means that when you make an upload from panel that has a recipe with 255 parameter sets, the last set is truncated.
As a workaround, you should use another program to modify your recipe data.

2.2.2 Download

From the “Commands” list box select the “Recipe Data Download to Panel” and click the “Start” button.
The UniDataExchanger will ask you the location of the source CSV file. This file must be in the same format as the one shown in the Figure 4.

2.3 Boot to Boot

The Boot to Boot feature allows upgrading the Boot part of the panel firmware by overwriting the same memory area already occupied by the existing Boot.

Note: *Boot to Boot is supported by the panel if the existing boot is version V4.24 or newer for all firmware types except FW37. Firmware Type 37 only supports instead Boot to Boot starting from Boot version V4.40*

The proper firmware type must be selected in the "Firmware" list box.
When the "Start" button is pressed the UniDataExchanger asks for the source file.

Note: *Boot to Boot transfer is a **critical** operation. Since the file will be copied overwriting the existing Boot, if a power down occurs during the transfer, the panel could become unusable. At the end of the Boot download the panel will automatically restarts itself; do not cycle the power of the unit in this phase and **wait the automatic panel restart**.*

The Boot to Boot command operates directly on the Firmware Flash in the part already occupied by the existing Boot.

2.4 Download Firmware

The Firmware download command transfers to the panels a Firmware file. This command requires only the proper selection of the firmware type in the "Firmware" list box and the selection of the proper binary file.

2.5 Download to Second Flash

The "Download to Second Flash" command downloads any binary file to the UniOP project Flash located in its "project" Flash socket.
This command is useful when the project Flash socket is used like a "programmer".
Selection of the correct Firmware type in the "Firmware" list box is fundamental for proper operation.

2.5.1 Upgrading Boot in Panels with Boot Version Older than 4.24

In case the panel has Boot version older than V4.24, it does not support the Boot to Boot feature.

If a Boot upgrade is required in this case, the only way to proceed it is preparing a new memory chip using the panel like a "flash programmer" to load to a new 512KB memory with the necessary files.

For example, using the "Download to Second Flash" command is possible to load to the memory inserted in the project memory socket of the panel, a certain Boot file. This memory can then be used as Firmware memory of the UniOP; at power up the panel will start in Boot Mode showing the Boot version in its first line; in this status UniOP is ready to accept the Firmware file download through the "Download Firmware" command.

2.6 Download Project

The "Download Project" command can be used to download to the UniOP panel a ROM file prepared with the Designer software.
The ROM file must be created specifying in Designer the memory media and the inclusion of Project and Protocol as shown in the example of Figure 5. The dialog box below is part of Designer Transfer options.

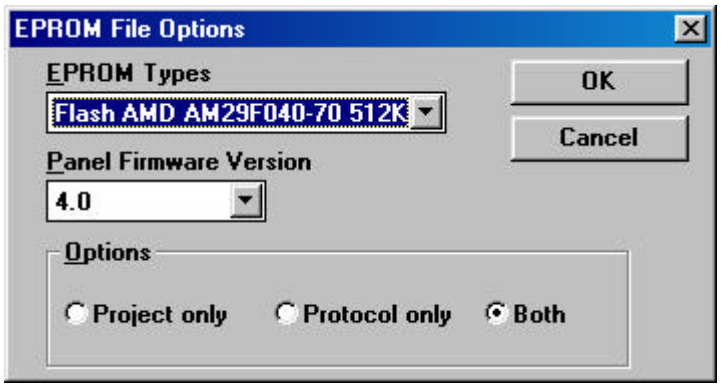


Figure 5

Note: *In this case it is very important to choose the correct memory type and size.*

2.7 Download Graphics File

The "Download Graphics File" Command transfers the Designer XRM file produced together with the ROM file when the Project is made for a Firmware Type 37 panels.
In this case the graphics information are in fact not included in the project and they have to be downloaded to the memory in the panel separately.

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