Tech-note

The UniDataExchanger

The UniDataExchanger is a tool that allows an easier handling of the file transfer to and from UniOP operator panels.

Contents

1 Introduction 3

2 Using UniDataExchanger 3
- 2.1 UniDataExchanger Menu 6
- 2.1.1 Communication 7
- 2.1.2 Separator character 8
- 2.1.3 UPLC DLL Directory 9
- 2.2 Handling Recipe Data 9
- 2.2.1 Recipe Upload 9
- 2.2.2 Recipe Download 10
- 2.3 Download Boot 10
- 2.4 Download Boot (SSFDC) 11
- 2.5 Download Firmware 11
- 2.6 Download Firmware (SSFDC) 11
- 2.7 Download MIPS Code (SSFDC) 11
- 2.8 Download MIPS Service 12
- 2.9 Download MIPS Service (SSFDC) 12
- 2.10 Download to Second Flash 12
- 2.10.1 Upgrading Boot in Panels with Boot Version Older than 4.24 12
- 2.11 Download Project 13
- 2.12 Download Project (All files) 13
- 2.13 Download Graphics File 13
- 2.14 Upload Project 14
- 2.15 Upload Project Flash Image 14
- 2.16 Trend Buffer Upload 14
- 2.17 Download SVG Files 15
- 2.18 Upload Event List 15
- 2.19 Upload Alarm List 15

3 UniDataExchanger Command Line Options 16

Tn175
Ver. 1.06
© 2008 Sitek S.p.A. – Verona, Italy
Subject to change without notice
The information contained in this document is provided for informational purposes only. While efforts were made to verify the accuracy of the information contained in this documentation, it is provided "as is" without warranty of any kind.
www.uniop.com

1 Introduction

The UniDataExchanger is a stand-alone software tool included in the standard Designer software package or downloadable from the web; it has been developed to easily handle file transfers to and from UniOP operator panels.

Recipe data, trend buffers, alarms and events list stored in the memory of the HMI device can be uploaded to a CSV file format; the file can be stored for archival purposes or, in case of recipe data, it 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 into the UniOP memory.

In case you have a Designer 6 installation, the UniDataExchanger is installed together with the Designer package. The executable file can be found into the installation folder of Designer; it can be launched from the Windows Start menu.

In case you have downloaded the stand alone installation from the web, to install UniDataExchanger, just create a new folder and copy the files. To start the program, locate the file "UniDataExchanger.exe" and run it.

The UniDataExchanger main window is shown in Figure 1.

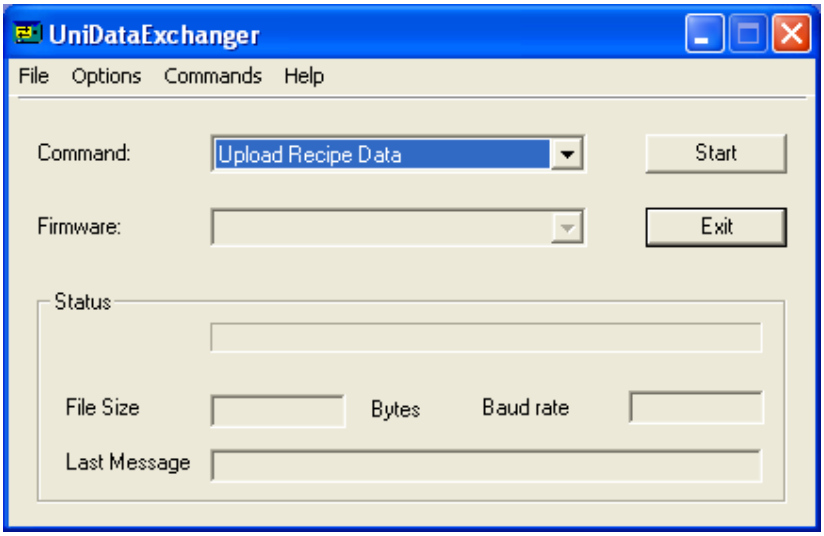


Figure 1

2 Using UniDataExchanger

The UniOP Firmware is composed by 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 version of the Boot 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 on the top of the display will show the Boot version.

The Firmware part is the real HMI engine handling most of the functionality of the product.
"Upgrading the firmware" in a panel means to change all the firmware components present into the panel.

Firmware is identified by its "Type" and by a version number. Different HMI models have different Firmware Type.
For panels that run Firmware Type 58/60/61/70/71/72/73 the firmware is composed by four parts: Firmware and Boot (already mentioned) and, in addition, MIPS Code and the MIPS Service files.

Note: *MIPS Service file for firmware versions 60, 61, 70, 71, 72 and 73 is included in the Boot file.*

The "Command" list box allows you to select the operation you want to perform.
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 in the following categories:

Firmware Type 32
Firmware Type 33
Firmware Type 37
Firmware Type 52
Firmware Type 53
Firmware Type 54
Firmware Type 55
Firmware Type 38 – Boot 38
Firmware Type 38 – Boot 39
Firmware Type 38 – Boot 48
Firmware Type 58
Firmware Type 60
Firmware Type 60 – Boot 61
Firmware Type 70
Firmware Type 70 – Boot 71
Firmware Type 70 – Boot 72
Firmware Type 70 – Boot 73

The Firmware Type is always available in the panel identification plate located in the rear cover of the device.
There are some exceptions for FW38/60/61/70/71/72/73 panels. Exceptions are explained below,
The Firmware Type is indicated as "S/W V. …".

The operator panels using firmware type FW38 can be equipped with three different CPU boards. Due to differences in the hardware, different Boot modules may be required; Boot 38, 39 or 48. All panels using Boot 38/39/48 are operating with the same **FW type 38**.

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

Boot 38 + Firmware 38	Hardware **38A**
Boot 39 + Firmware 38	Hardware **38B**
Boot 48 + Firmware 38	Hardware **48A**

For panels type 60, 61 and 70, 71 the Firmware version reported into the panel identification plate is the same, respectively 60 and 70. Due to different displays type these machines uses 2 different Boot files.

The general rule used to recognize the Boot type that has to be downloaded into Fw 60 and Fw 70 panels is:

TFT display = Boot 60/70
STN or B&W display = Boot 61/71

Currently the only HMI models that use Boot type 61 are:

eTOP05EB
eTOP11EB
eTOP32B

Currently the only HM models that use Boot type 71 are:

eTOP05C
eTOP11C

The Boot type 72 and 73 are used only for specific HMI models.
Currently the only HMI model that uses Boot type 72 is:

eBIS34C

Currently the only HMI models that use Boot type 73 are:

eX570 – NA03
eX840 – NA06

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
39C	52	FWT3BL52.BIN	FWT3DL52.BIN
40C	53	FWT3BL53.BIN	FWT3DL53.BIN
45A	54	FWT3BL54.BIN	FWT3DL54.BIN
55A	55	FWT3BL55.BIN	FWT3DL55.BIN
38A	38 with Boot Type 38	FWT3BL38.BIN	FWT3DL38.BIN
38B	38 with Boot Type 39	FWT3BL39.BIN	FWT3DL38.BIN
48A	38 with Boot Type 49	FWT3BL49.BIN	FWT3DL38.BIN

Table 1

For Hardware Type 58/60/61/70/71/72/73 the firmware files format is the same used by Designer (long filename); those files are normally stored using a different naming convention as described in Table 2.

FW Type	Boot Filename	Firmware Filename	MIPS Code Filename	MIPS Service Filename
58	Boot59-530-00-05.bin	Firm58-530-00-05.bin	Mips58-530-00-05.bin	Mser58-530-00-05.bin
60	Boot60-540L00-05.bin	Firm60-540L00-05.bin	Mips60-540L00-05.bin	
61	Boot61-540L00-05.bin	Firm60-540L00-05.bin	Mips60-540L00-05.bin	
70	Boot70-590-00-09.bin	Firm70-590-00-09.bin	Mips70-590-00-09.bin	
71	Boot71-590-00-09.bin	Firm70-590-00-09.bin	Mips70-590-00-09.bin	
72	Boot72-590-00-09.bin	Firm70-590-00-09.bin	Mips70-590-00-09.bin	
73	Boot73-590-00-09.bin	Firm70-590-00-09.bin	Mips70-590-00-09.bin	

Table 2

Note: *The long filename naming convention includes in the firmware name also the firmware version. For example in the string Boot59-530-00-05.bin the number 530-00-05 indicates the firmware version 5.30.*

Note: *MIPS Service file for firmwareTypes 60, 61, 70, 71, 72 and 73 is included into the Boot file; so, no MIPS Service file is available for these firmware Types.*

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

2.1 UniDataExchanger Menu

The “Options” Menu contains some general settings of the program.
This menu is shown in Figure 2.

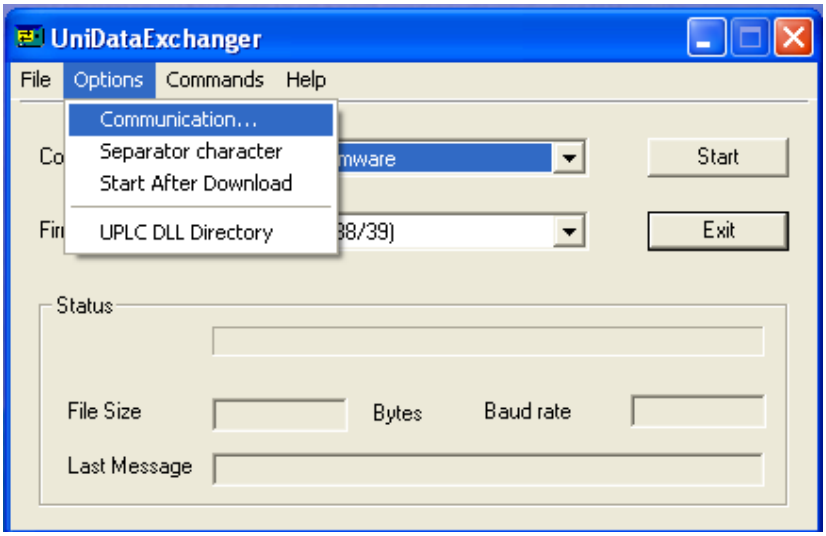


Figure 2

2.1.1 Communication

The menu item “Communication…” allows the definition of the communication port of the computer used to connect to the panel.
The dialog box is shown in Figure 3 below.

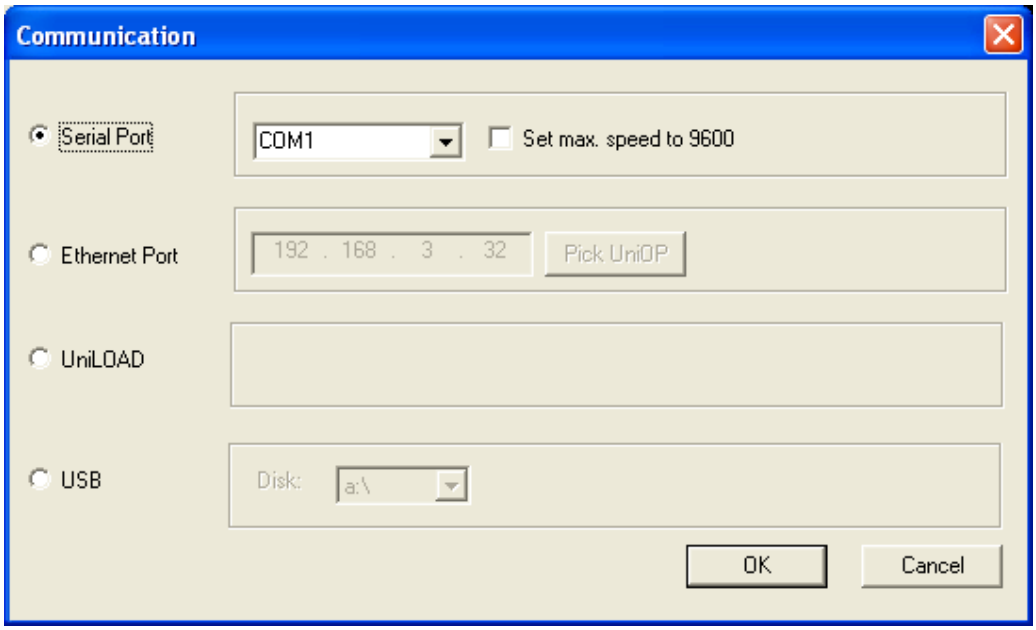


Figure 3

If you select serial communication, you can select the COM port; to connect to one serial port you will need one of the standard communication cables CA02 or CA114.

The second choice is the Ethernet communication, to select communication with a particular device you need to click on “Pick UniOP” button, and then a list of all the IP addresses of the panels connected via Ethernet will be shown. Now you can select the panel you need to work with.
See Figure 4 below for an example. Alternatively you may enter an IP address manually.

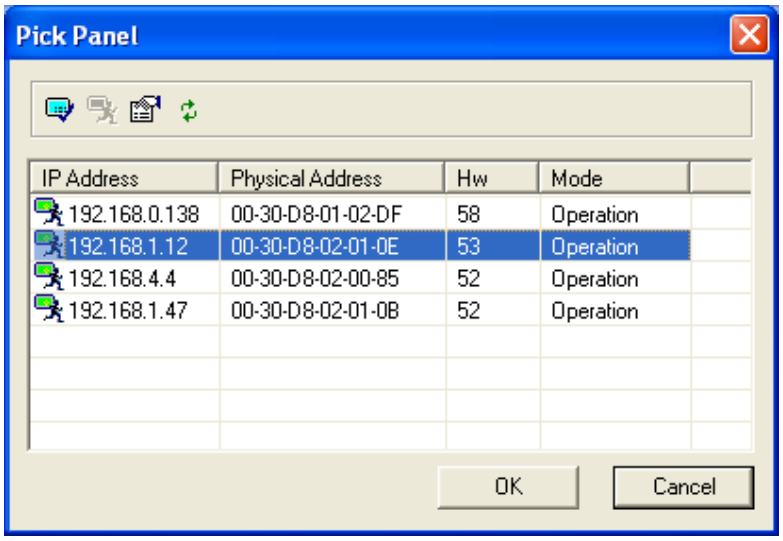


Figure 4

Third choice is UniLOAD, when this is selected the range of UniDataExchanger commands that can be selected from the main window is restricted to “Upload Recipe Data” and “Download Recipe Data”.

Fourth choice is USB; this allows selecting a disk from where you can retrieve the data. As for UniLOAD when this option is selected the range of UniDataExchanger commands that can be selected from the main window is restricted to “Upload Recipe Data” and “Download Recipe Data”

Note: *Using a serial connection UniDataExchanger can connect to a panel only if it is in Configuration Mode. When connecting with Ethernet, panels can respond to UniDataExchanger also when they are in Operation Mode.*

Note: *To use the Ethernet connection you must have either a panel with a built-in Ethernet port or use a TCM10/ SCM11/SCM12 module; firmware version older than 5.30 cannot support Ethernet programming.*

Note: *The storage of Recipe data on SSFDC or USB driver is supported only by FW 70, 71, 72 and 73 panels starting from firmware version 5.90 and Designer 6.07.*

2.1.2 Separator character

The “Separator Character” entry allows defining the character used as a separator when preparing the recipe data file in CSV format. Figure 5 shows the “Define Separator character” dialog box.

Figure 5

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.

2.1.3 UPLC DLL Directory

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.

On panels type FW 70, 71, 72 and 73, starting from firmware version 5.90 and Designer version 6.07 the recipe data is stored directly into the flash memory of the panel and not in RAM; the data can be also copied on SSFDC or USB disk and uploaded/downloaded directly from/on these supports.

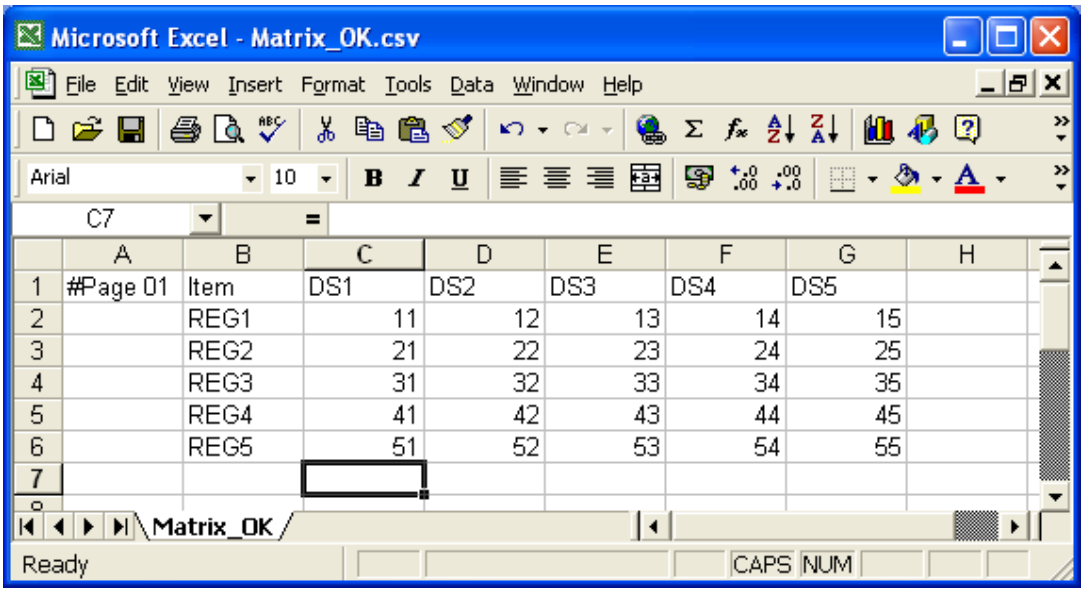
Note: *Recipe data handling with UniDataExchanger is supported by UniOP firmware version 4.44 and higher.*

Note: *For a correct management of the recipe data the UPLC DLL Directory must be set correctly, for more information refer to chapter 2.1.3.*

2.2.1 Recipe Upload

From the "Commands" list box select the "Upload Recipe Data" 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 6; 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								

Figure 6

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 Recipe Download

From the “Commands” list box select the “Download Recipe Data” 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 6.

2.3 Download Boot

The Download Boot command allows the upgrade of the Boot part of the panel firmware by overwriting the same memory area already occupied by the existing Boot.

Note: *Download 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: *Download 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 for the completion of the automatic restart of the operator panel.****.*

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

2.4 Download Boot (SSFDC)

The Download Boot (SSFDC) command transfers to the SSFDC a Boot file. This command requires the proper selection of the firmware type in the "Firmware" list box and the selection of the proper binary file.

Note: *Download Boot (SSFDC) command performs only a download of the file, the upgrade of the Boot version of the panel must be performed manually on the panel after the download.*

Note: *The Boot upgrade operation on panel is supported only 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.*

Note: *Upgrade Boot operation on panel 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 upgrade the panel will automatically restarts itself; do not cycle the power of the unit in this phase and* ***wait for the completion of the automatic restart.of the operator panel.***

2.5 Download Firmware

The Download Firmware 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.

2.6 Download Firmware (SSFDC)

The Download Firmware (SSFDC) command transfers to the SSFDC a Firmware file. This command requires the proper selection of the firmware type in the "Firmware" list box and the selection of the proper binary file.

Note: *Download Firmware (SSFDC) command performs only a download of the file, the upgrade of the Firmware version of the panel must be performed manually on the panel after the download.*

2.7 Download MIPS Code (SSFDC)

The Download MIPS Code (SSFDC) command transfers to the SSFDC a MIPS Code file. This command requires the proper selection of the firmware type in the "Firmware" list box and the selection of the proper binary file.

Note: *The MIPS Code file is needed only into the HW58/60/61/70/71 machines.*

2.8 Download MIPS Service

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

Note: *The MIPS Service file is needed only into the HW58/60/61/70/71/72/73 machines and only starting from Firmware version 5.30.*

Note: *The MIPS Service file for HW60/61/70/71/72/73 is included into the Boot file starting from Firmware version 5.40; so the MIPS Service binary files version 5.40 or newer are not available individually.*

2.9 Download MIPS Service (SSFDC)

The Download MIPS Service (SSFDC) command transfers to the SSFDC a MIPS service file. This command requires the proper selection of the firmware type in the "Firmware" list box and the selection of the proper binary file.

Note: *The MIPS Service file is needed only into the HW58/60/61/70/71/72/73 machines and only starting from Firmware version 5.30.*

Note: *The MIPS Service file for HW60/61/70/71/72/73 is included into the Boot file starting from Firmware version 5.40; so the MIPS Service binary files version 5.40 or newer are not available individually.*

2.10 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.

2.10.1 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 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.

2.11 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 7. The dialog box below is part of Designer Transfer options.

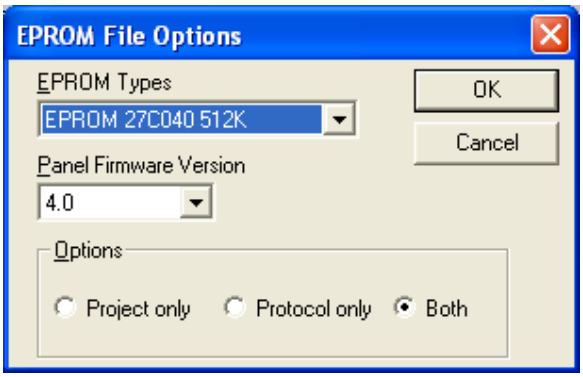


Figure 7

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

Note: *The FW type 58/60/61/70/71/72/73 projects are composed from a ROM file and some other files like SVG, GFX etc... An apposite command called "Download Project (All files)" (See chapter 2.10) has been created to download the projects for those HW types using UniDataExchanger.*

2.12 Download Project (All files)

For FW type 58/60/61/70/71/72/73 the ROM folder created by Designer contains a set of files with all the project components such as SVG files, graphics and fonts.
The "Download Project (All files)" command supports the download of all the project files in a single session.
The file .ROM has to be selected when you launch the command, then UniDataExchanger automatically takes and downloads all the other needed files into the panel.

2.13 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 is in fact not included in the project and they have to be downloaded to the memory in the panel separately.

2.14 Upload Project

The "Upload Project" command can be used to upload the project present into the UniOP panel as a ROM file.

Note: *Using the Upload Project command will upload ONLY the project file, the protocol is not uploaded. So if you need to download the ROM file obtained into a panel the protocol file must be already present into the panel, otherwise the panel will not enter Operation Mode.*

2.15 Upload Project Flash Image

The "Upload Project flash image" command uploads the entire content of the Project flash as a BIN file.
This command can be used to have a backup file of the project contained into a panel; the obtained BIN file will contain all the project files and also the protocol file.
The "Download to second flash" command must be used to download the BIN file into a panel.

Note: *This command can be used with all the panels that have a Project flash so: FW 32, 33, 52, 53, and 54.*

2.16 Trend Buffer Upload

The "Trend Buffer Upload" command allows retrieving from the panel the trend buffer information stored in its internal RAM Memory and generates a CSV file with the timestamp and data information.

Note: *Trend Buffer Upload commands requires firmware V5.00 or above*

Note: *Starting from UniDataExchanger version 1.11.08.02 the number of valid samples is reported into the uploaded file. If the trend buffer is not full at upload time all the not valid values are recognizable from the (not valid) voice reported on those voices.*

Example:
;Trendbuffer :New Buffer
;Number of samples : 3000 (941 of them are valid)
2007-05-23 08:17:24,0
2007-05-23 08:17:25,0
2007-05-23 08:17:26,0
2007-05-23 08:17:27,0
2007-05-23 08:17:28,0,(not valid)
2007-05-23 08:17:29,0,(not valid)
2007-05-23 08:17:30,0,(not valid)

Note: *For a correct management of the trend data, the UPLC DLL Directory must be properly set; for more information refer to chapter 2.1.3.*

2.17 Download SVG Files

The "Download SVG Files" command allows transferring to a FW58 unit the SVG components of its Designer application. SVG files are normally temporary created by Designer at the download time and later deleted.
SVG files can be created by Designer using the "Save as…" command available from the file menu and selecting the "ROM" file option in the "File Type" combo box.
When saving the ROM file, Designer creates a directory named with the project name and adding to it the extension ".rom". Inside this directory Designer stores all the SVG files programmed in the project (files with .svg extension) and an additional ASCII file (with extension ".svg-proj") which contains the list of all the SVG components of the current project.
When starting the SVG download, UDE needs this ASCII file to perform the SVG file download.

Note: *The support in Designer for the ".svg-proj" file is included starting from version 6.01(07) and above.*

2.18 Upload Event List

The "Upload Event List" command creates a CSV file containing the following information:

- Event type
- Number of the alarm
- Time

From the "Commands" list box select the "Upload Event List" 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.

Note: *Upload Event list command requires firmware version V5.30 or above.*

Note: *With Serial connection this command can be used only when the panel is in Configuration Mode, returning into Operation Mode by pressing the enter key, will clear the event list. To preserve the list, the panel must be reset with a power cycle.*

2.19 Upload Alarm List

The "Upload Alarm List" command creates a CSV file within the following information:

- Alarm number
- Static flags
- Dynamic flags
- On time
- Off time
- Link flags
- Log flags

From the "Commands" list box select the "Upload Alarm List" 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.

If some alarms are currently active you can choose if you want to upload all the alarms actually configured or only the active alarms.

Note: *Upload Alarm list command requires firmware version V5.30 or above.*

Note: *The alarm list is only available in Operation Mode; this command works only with the Ethernet connection.*

3 UniDataExchanger Command Line Options

Starting from version 1.07.15.01, the UniDataExchanger software tool supports some command line options; the program can be launched and operated using batch files.

The command line syntax is the following:

```
UniDataExchanger
[/h][/port:x][/9600][tcpip:a.b.c.d][/cmd:x][/file:filename][/trend:b
uffer][/fw:x][/quit][/start]
```

The table shows the list of supported command line options:

`/h`	Displays the help page
`/port:x`	Specifies the COM port number to be used for serial transfers where x is 1, 2, 3, …
`/9600`	Forces the maximum baud rate to 9600 baud
`/tcpip:a.b.c.d`	Specifies the IP address of the panel for Ethernet transfers
`/cmd:x`	Specifies the command to be execute where x is the ordinal number of the command as specified in the UniDataExchanger.ini file
`/file:filename`	Specifies the name of the file to be downloaded or the name assigned to the uploaded file
`/trend:buffer`	Specifies the trend buffer number to be uploaded
`/fw:x`	Specifies the firmware type according to the following list: 0 – unknown 32 – FW32, FW52, FW53 33 – FW33 37 – FW37 38 – FW38 (Boot 38/39) 58 – FW58, FW60
`/start`	Specifies to send the start command at the end of the file transfer
`/quit`	Specifies to close the UniDataExchanger application after command has been completed.

Table 3

Command line syntax

```
Command line syntax:
UniDataExchanger [/h][/port:x][/cmd:x][/file:filename][/quit][/start]
/h               Display help page
/port:x          Specify COM port where x is 1,2,3...
/9600            Force max baud rate speed to 9600...
/tcpip:a.b.c.d   Specify TCP/IP address of panel...
/cmd:x           Specify command to be executed (command code from INI)
/file:filename   Specify filename which will be downloaded/uploaded
/trend:buffer    Specify trend buffer which will be downloaded/uploaded
                 If buffer is ALL then all trend buffers will be used
/fw:x            Set firmware type where 'x' can be:
                         0 - Unknown firmware
                         32 - FW32, FW52, FW53
                         33 - FW33
                         37 - FW37
                         38 - FW38 (Boot 38/39)
                         58 - FW58
/start           Switch panel to operation mode after the download
/quit            Quit upon command execution
```

OK