New Features in Designer 5.05/UniOP 4.20

The new UniOP Designer version 5.05, and its companion UniOP firmware version 4.20, comes plenty of new features. These new features are described in detail in specific Technical Notes and in the User's Manual. This Technical Note contains only the release highlights and will help you point out the differences and the improvements from the previous versions.

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1. Touch Screen Programming

A completely new and greatly improved touch screen programming approach is now available. The new library of pushbuttons, selectors, indicators, will make touch based application even more appealing and effective.

The complete description of the new features is available in the Technical Note TN100.

The programming interface is based on the new floating toolbox that let the user choose the type of touch button to be selected. The complete configuration is then carried out with a new tabbed dialog box containing all the visual and reference information associated to the touch element.
The new touch screen features are available in all UniOP touch screen models equipped with firmware version 4.20 or later. Designer 5.05 is fully backward compatible with all older UniOP versions and project files including touch screen information created with Designer 5.03 or older. Touch screen projects created with Designer 5.03 or older can be converted to the new format.

An interesting improvement is that the font used for the touch button legend text is individually selectable for each touch button and can be edited also after a project file upload. Additionally, the legend text now supports multilanguage programming with the memory-saving 'Use UniOP font' option or with the full font capability.

Status of Selector devices can be cyclically updated from the associated PLC reference. This feature, if not requested by the application, can be disabled to obtain an higher communication performance. In order to properly use Selector Switches you should keep in mind that they are **bit oriented**. Even when they are attached to a word, only one bit must be set to one at any time; UniOP will display asterisks in the screen area of the selector whenever the associated bit pattern is not correct. UniOP displays asterisks also when the referenced word has not been initialised and contains the value zero. This may happen, for instance, after a power up if the memory locations used for the selectors are not initialised.

2. Recipe Handling

The UniOP Recipe facilities have been enhanced both in the hardware and in the software part:

- The recipe memory has been increased to 32 KB in all UniOP graphic models with firmware type 33, 37 and 38. In practice in all ¼ VGA, 640x400 and VGA models. The increased recipe memory (32 KB) is the result of an improvement to the UniOP hardware and will not be available as a consequence of firmware upgrade of older units to version 4.20. The amount of recipe memory available in a UniOP panel can be easily checked using the Designer with the 'Get Panel Resources' command.

- The Recipe Menu function will make it easier to select recipe parameter sets by name with a common menu-based interface.

- The Recipe Link feature will let you use (select, download, upload) recipe data defined in multiple UniOP pages as if they where defined in the same page. The resulting UniOP programming interface is much simpler.

- A new automatic optimization technology has been introduced in some communication drivers to make faster recipe downloads. The new possibility is automatically enabled when the system finds a recipe transfer to memory registers with contiguous addresses. **In this Designer release this feature is supported only in the following protocols: Simatic S5, Simatic S7 MPI and Simatic S7 PPI and will be eventually extended to other drivers in the next releases.**

Description of the new recipe functions can be found in the technical notes TN101 and TN112.

3. Multilanguage Programming

Multilanguage program editing has been extended to allow for selectable cut/copy/paste in the current or in all the languages of the application.
In Designer 5.05, the cut/copy/paste commands work in the usual way unless the 'Multilanguage Mode' in the Edit menu is set.
When working on multilanguage projects, the default behaviour of the cut/copy/paste commands is to operate only on the language currently active. If 'Multilanguage Mode' is set, the commands operate on all the languages.
Special care has to be taken when using the cut command: the language sensitive information of the project (for instance a text in the page) will actually be cut in all the languages of the project.
Improper use may lead to loss of information but you will find this feature very useful for operations such as moving text in all languages at the same time.

It is now possible to change the current UniOP language also from within Special UniOP pages (for instance the Alarm Page). This feature is made possible by the availability of the 'Step on Control Variable' macro command also in the special page modes.

The modeless dialog box 'Change Language' can be recalled from any context with the special command 'Ctrl L'. The command 'Shift+Ctrl L' will cycle through all the available languages.

4. Alarms

The alarm mechanism has been improved in several ways:

- The maximum length of the alarm messages is now the same as the display size. The Designer will let you enter a 20 character string if you are programming a panel with a 4x20 display; if you are working with a VGA display it will be possible to enter alarm texts up to a maximum length of 80 characters. The previous versions of Designer made no distinction between display types and always permitted to edit strings with a length of 40 characters. Firmware 4.20 is required on VGA panels to support the extended message length.

- It is possible to individually select for each alarm if the corresponding alarm events will be logged in the historical event list or not. The choice can be done in the 'Current Alarm Options' section of the Alarm Definition dialog box. Note that disabling the log to the event list will also disable the possibility of automatically printing the alarms to the serial printer. UniOP firmware version 4.20 is required to support this feature.

- It is possible to disable the display of time and date information in the UniOP Alarm Page. This feature is interesting in all cases when the time and date information is not of interest for the user of the machine or it is not valid (which normally happens in all UniOP models which do not have the battery back-up option. The option can be selected with a new checkbox in the 'Advanced' options of the Alarm dialog box. UniOP firmware version 4.20 is required to support this feature. See figure below for the new dialog box.

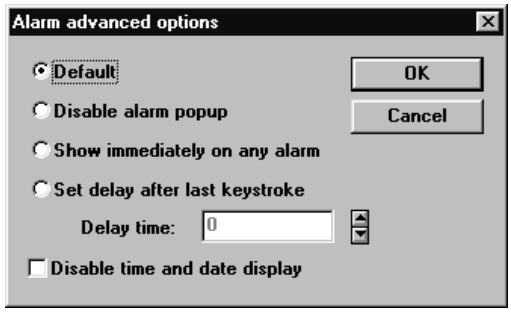

Figure 1

- The size of the event list has been extended to 1024 events (it is 256 now). The increased event list size is available in all UniOP graphic models with firmware type 33, 37 and 38. In practice in all ¼ VGA, 640x400 and VGA models. The increased event list size is the result of an improvement to the UniOP hardware and will not be available as a consequence of firmware upgrade of older units to version 4.20. The number of entries available in the event list in a UniOP panel can be easily checked using the Designer with the 'Get Panel Resources' command.

5. Miscellaneous

There are several other changes that improve various features of both the Designer software and the UniOP firmware. They are described in detail in the chapters below.

5.1 Displays.ini

The Designer includes the support for the new display types recently introduced in some new UniOP models. The description of the new display types is included in the file Display.ini, which is installed in the Windows directory. Note that copying the new Displays.ini file to an existing Designer installation will add the support of new display types also to an older Designer version.
The display types just introduced are:

Display Type	Use for
4x20 LCD Graphic	CP10G-04, CP11G-04, CP12G-04, CP13G-04
8x40 LCD Graphic	MKDG-06, MKDG-07
30x80 EL	EL-VGA, ELT-VGA, MKDL-VGA
30x80 LCD	ER-VGA, ERT-VGA, MKDR-VGA

Table 2

For the 4x20 and 8x40 graphic displays a new font has been introduced; the name of the new font is LCD6X8G and includes support for bargraphs and scalable fonts.

5.2 Macros and Automatic Renumbering of Fields

The ‘Select data entry field’ command allows the user to select the field they wish to edit. Fields are counted from left to right, top to bottom on the panel page. Note that attributes, time and date fields and touch cells attached to controller are also counted as fields.
From version 5.05 the Designer software will automatically reindex all references in the ‘Select data entry field’ macros as fields are inserted and/or deleted in the project page.

5.3 New Macro Editor Commands

You will find some new Macro Editor commands available in version 5.05; also several special modes have acquired the possibility of using some of the existing commands.
The complete list of available macro commands in each mode is shown in the table below. New commands are in bold.

Macro Command	Page and Page n	Data Entry	Alarms	Command Menu	Event List	Time/Date
Go to page	x	x				
Return to initial page	x					
Password protect	x					
Show Alarm List	x					
Show Event List	x					
Printout on/off	x					
Print Report	x					
Scroll to line	x					
Select data entry field	x					
Begin data entry	x					
Data editing	x					
Data Entry Popup Toggle	x					
Clear Event List	x				**x**	
Send command	x					
Write to Controller	x	**x**	**x**			
Toggle Relay	x	**x**	**x**			
Step	x	x				
LED state	x					
Scroll up	x					
Scroll down	x					
Wait	x	x	x			
Display Text	x					
Attribute	x					
Recipe Control	x					
Passwords	x					
Next page	x					
Previous page	x					
Brighter display	x					
Dimmer display	x					
Pass-through Mode	x					
Control Variable Step	x	**x**	**x**	**x**	**x**	**x**
Go to recipe menu	**x**					
Scroll recipe menu	**x**					
Confirm recipe menu selection	**x**					
Next field		x				x
Previous field		x				
Field down		x				
Field up		x				
Confirm		x		X		
Cancel		x				
Erase		x				
Begin data entry		x				
Data editing		x				
Page Mode			x	**x**	**x**	**x**
Acknowledge alarm			x			
Scroll up			x		x	
Scroll down			x		x	
Print alarms			x			
Go to alarm page			x			
Left				x		
Right				x		
Up				x		
Down				x		
Next Field						**x**
Increment						x
Decrement						x

Table 1

5.4 Battery Low Alarm

UniOP has a default battery low alarm. The low battery condition is reported by the flashing Fault LED, in the models where it is available. In all cases in which the battery low alarm is not required it is possible to disable it and so avoid the flashing red LED which may be disturbing.
To disable the battery low alarm, check the corresponding checkbox in the Miscellaneous Panel parameters dialog box. See figure below.

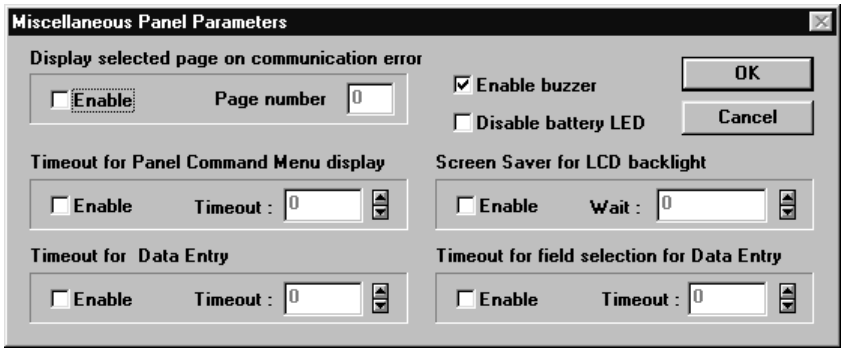

Figure 3

The feature requires UniOP firmware version 4.20 or later.

5.5 Pass-through Commands from Designer

The Designer can send directly the commands to operate the Remote Pass-through options. When the Remote Pass-through has been configured in the Panel Setup, a new entry will be available in the Transfers menu (see figure below). Selecting one of the three available commands, the Designer will send to the serial line the corresponing strings programmed in the RPT Setup dialog box.

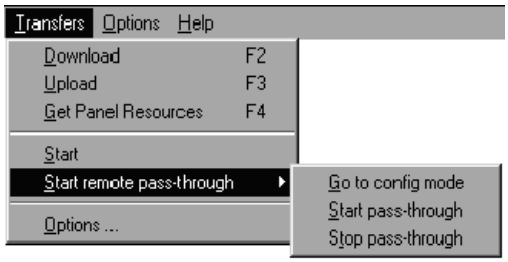

Figure 4

In order to send properly Remote Passthrough commands to UniOP directly from Designer, you should configure the Remote Passthrough parameters to 9600 baud, parity none, 8 data bit and 1 stop bit. Also the Communication parameters of the serial port must be changed before starting a Remote Passthrough session.

5.6 Pass-through Status

When the pass-through mode has been activated, the UniOP panel does not communicate with the controller and the dynamic data displayed on the screen may be no longer correct. It may be useful to

inform the user that the pass-through option is active. A control variable has been defined for this purpose: ‘Pass Through Status’. The variable can have two values:

Value	Meaning
0	Pass through not active
1	Pass through active

Table 2

5.7 Color Attributes

All UniOP color panels support a new type of dynamic attribute field that will allow the user to dynamically control the color of an area on the display.
The color attributes have been introduced as an extension to the existing monochrome dynamic attributes (blink, reverse and highlight).

The word in the controller memory referenced by the dynamic attribute will be interpreted as shown in the table below.

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	F0-F3				B0-B3								C	M0-M2		
	Foreground color				Background color									Monochrome attribute		

C is the bit that enables the color attribute mode:

C	Color attributes
0	Disabled
1	Enabled

Table 3

The Monochrome attributes are interpreted in the conventional way. See table.

M2	M1	M0	Numeric value	Attribute
0	0	0	0	Normal
0	0	1	1	Blinking
0	1	0	2	Highlight
1	0	0	4	Reverse

Table 4

The Color attributes are interpreted according to the table below.

Bit				Numeric value	Color
3	2	1	0		
0	0	0	0	0	Black
0	0	0	1	1	Dark Red
0	0	1	0	2	Dark Green
0	0	1	1	3	Dark Yellow
0	1	0	0	4	Dark Blue
0	1	0	1	5	Dark Magenta
0	1	1	0	6	Dark Cyan
0	1	1	1	7	Dark Gray
1	0	0	0	8	Light Gray
1	0	0	1	9	Red
1	0	1	0	10	Green
1	0	1	1	11	Yellow
1	1	0	0	12	Blue
1	1	0	1	13	Magenta
1	1	1	0	14	Cyan
1	1	1	1	15	White

Table 5

Note that the Foreground color and the Background color can be independently controlled.
UniOP firmware 4.20 or later is required to support dynamic color attributes.

5.8 Touch Screen Calibration Procedure

The command sequence to activate the emergency touch screen calibration procedure has been modified for the ERT-16 model. The frequency of the tapping required to activate the calibration process has been reduced for easier access but it is still at a level which will exclude unwanted activation of the calibration procedure.

5.9 Default Data Entry Page for Touch Screens

The default Data Entry Page in all touch screen models now includes also the display of the Minimum and Maximum value associated to the field under data entry. Min and Max values are not available for special data formats.
Note it is still true that will you define a custom Data Entry Pages you will lose the display of the Current value as well as the Min and Max values.
The new Data Entry Page is available in all touch screen models from firmware version 4.20.

5.10 Display Scroll in Data Entry Mode

This feature is especially interesting for use in UniOP models with small displays: in the Data Entry Mode of the Keyboard Macro Editor the macro commands Next Field, Previous Field, Field Down and Field Up, have a new option (see figure below) that allows the panel to scroll the page to reach data entry fields that may be not visible at the moment the data entry is started. The feature is useful when multiple data entry macro sequences have been defined.

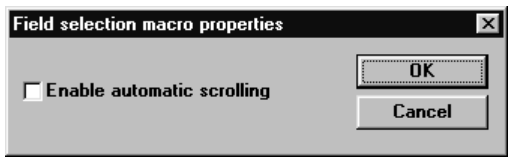

Figure 5

5.11 Designer-UniOP Communication

The Designer to UniOP communication has been optimized and all communication timeouts have been revised for optimal performance.
You will notice that the new Designer version 5.05 will react faster than the previous versions to exceptions such as the disconnected communication cable. Also recovery in case of errors will be faster.

5.12 Memory Used Dialog Box

The Memory Used dialog box has been improved to provide a finer view of the project memory requirements. The new dialog box is shown in the figure below.

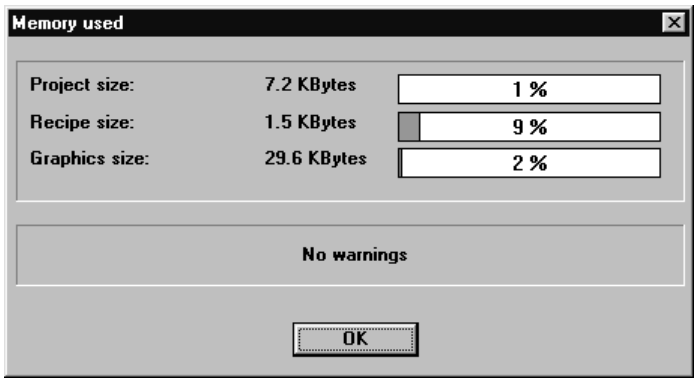

Figure 6

The new item ‘Graphic size’ reports the amount of memory required by the graphic information (bitmaps and touch cells). In some operator panels these graphic objects are transferred separately, as you may have noticed from the messages displayed in the download information window.

This is currently true for ¼ VGA color panels such as the BKDC-16 and the ECT-16. In all other cases the graphic information is embedded in the project and it is not accounted separately.
These models have an internal storage for the graphic information of the project based on a 1 MB Flash memory. This memory is not counted as standard project memory. It follows that in their base configuration, the BKDC-16 and the ECT-16 have 512 KB of memory for the project and 1 MB memory for the graphic. The graphic memory is currently non-expandable and non-removable.

Firmware type	Base memory	Expandability	Max Total Memory	Max Project Size	Graphic Memory	Max Graphic Size
32	128 KB	512 KB (MEM-05)	640 KB	640 KB		
33	512 KB	512 KB (MEM-05)	1 MB	1 MB		
37	512 KB	512 KB (MEM-05)	1 MB	1 MB	1 MB	1 MB
38	2 MB	4 MB (MEM-07)	4 MB	768 KB		

Table 6

Example 1 – ERT-16

The 'Memory Used' dialog box reports only the total memory requirements of the project file.

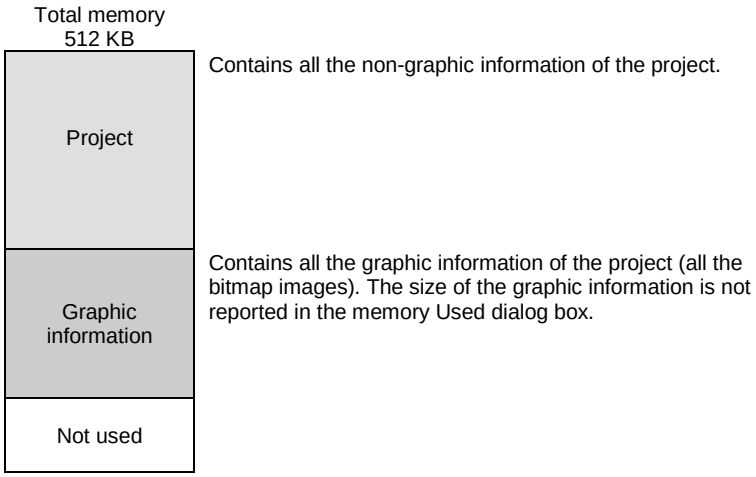

Figure 7

Example 2 – ECT-16

The 'Memory Used' dialog box reports separately the non-graphic and the graphic memory requirements of the project file.

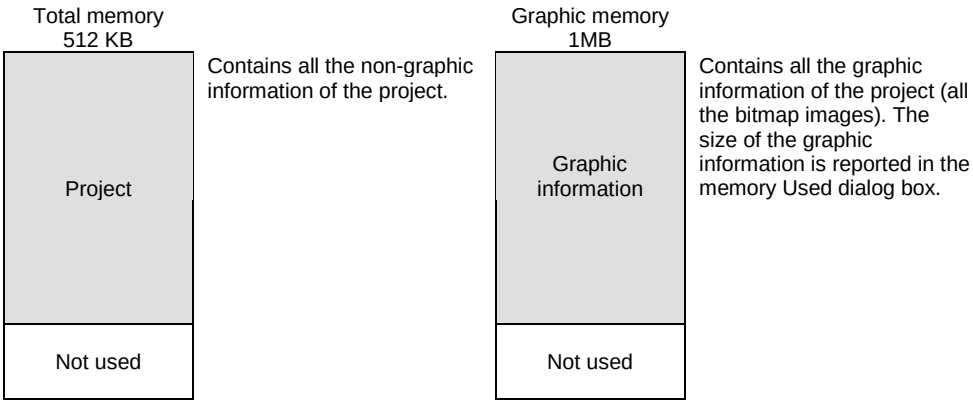

Figure 8

Example 3 – ECT-VGA

The ‘Memory Used’ dialog box reports only the total memory requirements of the project file.

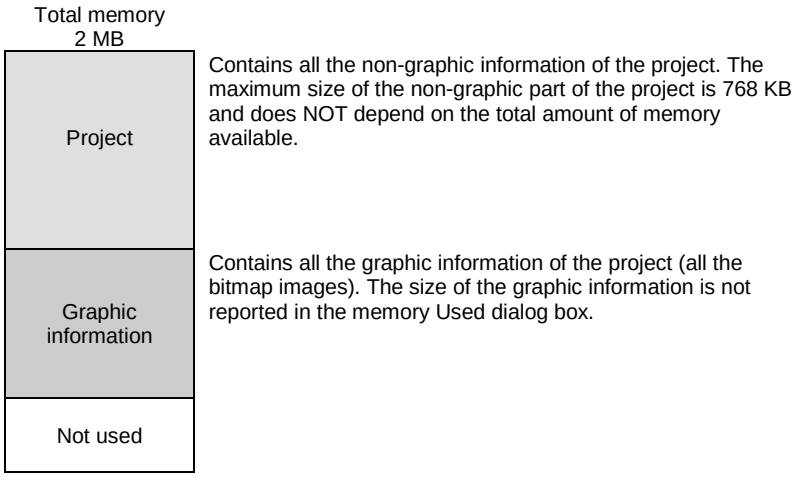

Figure 9

5.13 Special Designer Command Line Options

In some cases, using one of the preliminary versions of Designer 5.03 on project files originally created with Designer 5.01, may have resulted in corrupting the project file itself. In those cases, though there was no loss of information in the project file itself, it was not possible to open it again with later versions of Designer.
A quick fix for this problem has been included in Designer 5.05. The procedure may be activated with a new command line option for the Designer. To use this feature of Designer you should create a new shortcut to the Designer.exe file and you should edit the command line adding the switch **/p 501** as shown in Figure 10.
Starting Designer with this option lets you open some damaged projects and save them with another name. You should use this feature of Designer only when trying to solve a project file opening problem. In all other cases you should start Designer in the normal way.

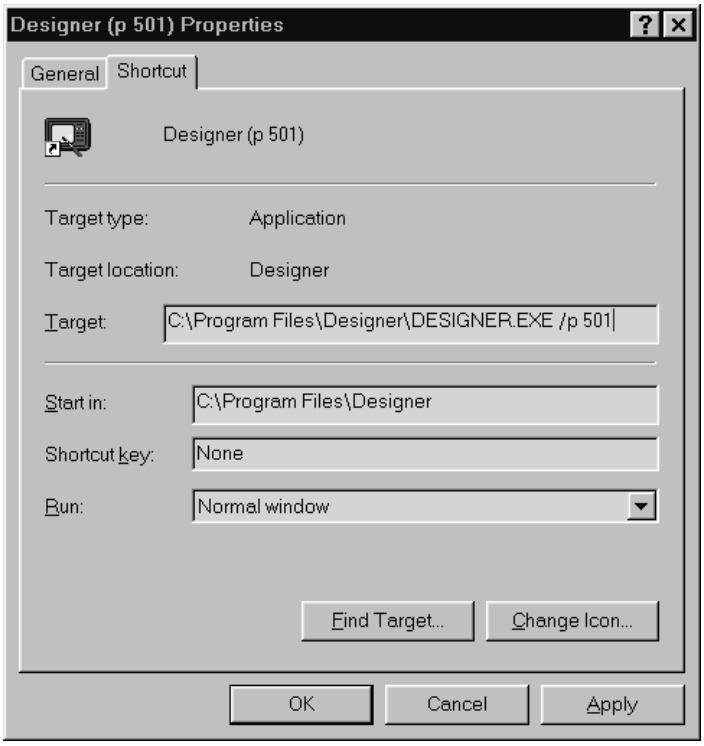

Figure 10

6. Automatic Temperature Compensation of the Display Contrast

The contrast of the STN LCD displays changes with the temperature of the environment where the display is operating. In several cases the manual adjustment of the display contrast is necessary to ensure optimal readability. Though UniOP offers a very easy way to set the display contrast via software, some UniOP hardware and firmware configurations are now offering automatic temperature compensation of the contrast.
The new feature is now available in all ¼ VGA color UniOP models (BKDC-16 and ECT-16) equipped with firmware version 4.20.
The automatic compensation will be extended to other graphical models in the future.

7. Firmware Upgrade

UniOP units with firmware version older than 4.20 can be upgraded to the version 4.20 by means of the simple firmware download process only under certain restrictions; the reason of the restriction is in the compatibility of the bootstrap loader module which has been changed to take into account some of the new features.
Firmware download is possible only for UniOP panels originally equipped with version 4.13. Note that both in the case of firmware and in the case of replacement of the Flash chip, the features related to hardware improvements will not be available.
The table below lists for each UniOP model the code of the corresponding firmware and the oldest version that can be upgraded to 4.20 by means of replacing the firmware Flash chips.

Model	FW Type	Oldest version upgradable
MD00R-02	32	4.10
MD00R-04	32	4.10
MD03R-02	32	4.09Q
MD03R-04	32	4.09Q
MD02F-02	32	4.09Q
MD02R-04	32	4.09Q
CP01R-04	32	4.09Q
CP02R-04	32	4.09Q
CP01F-02	32	4.09Q
CP02F-02	32	4.09Q
CP04F-04	32	4.09Q
CP10G-04	32	-
CP11G-04	32	-
CP12G-04	32	-
CP13G-04	32	-
EF-02	32	4.09Q
EF-04	32	4.09Q
ER-04	32	4.09Q
MKDF-02	32	4.09Q
MKDF-04	32	4.09Q
MKDR-04	32	4.09Q
MKDR-05	32	-
MKDG-06	32	-
MKDG-07	32	-

Model	FW Type	Oldest version upgradable
ER-16	33	4.07Y
EL-16N	33	4.07Y
ER-25	33	4.07Y
ER-VGA	38	-
EL-25	33	4.07Y
EL-VGA	38	-
BKDR-16	33	4.07Y
BKDC-16	37	4.09
BKDL-16	33	4.07Y
MKDR-16	33	4.07Y
MKDL-16N	33	4.07Y
MKDR-25	33	4.07Y
MKDL-25	33	4.07Y
MKDR-VGA	38	-
MKDC-VGA	38	4.11
MKDL-VGA	38	-
MKDT-VGA	38	-
ERT-16	33	4.07Y
ECT-16	37	4.09
ELT-16	33	4.07Y
ER-25T	33	4.07Y
EL-25T	33	4.07Y
ERT-VGA	38	-
ECT-VGA	38	4.11
ELT-VGA	38	-
ETT-VGA	38	-

Table 7

8. New Features: a Reference Table

The table below describes the current status of the new features in all UniOP models.
Note that the increased Recipe Memory and the increased size of the Event List will NOT be available as result of UniOP firmware upgrade.

Model	Recipe Memory	Event List	Automatic Contrast Compensation	New Touch screen Programming	Recipe Menu and Multipage Recipe	Disable Battery Alarm	Alarm Options	Color Attributes	Pass through Status
MD00R-02	-	-	-	-	-	Yes	Yes	-	-
MD00R-04	-	-	-	-	-	Yes	Yes	-	-
MD03R-02	-	-	-	-	-	Yes	Yes	-	-
MD03R-04	-	-	-	-	-	Yes	Yes	-	-
MD02F-02	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MD02R-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP01R-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP02R-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP01F-02	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP02F-02	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP04F-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP10G-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP11G-04		256	-	-	Yes	Yes	Yes	-	Yes
CP12G-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
CP13G-04		256	-	-	Yes	Yes	Yes	-	Yes
EF-02	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
EF-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
ER-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MKDF-02	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MKDF-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MKDR-04	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MKDR-05	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MKDG-06	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
MKDG-07	16 KB	256	-	-	Yes	Yes	Yes	-	Yes
ER-16	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
EL-16N	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
ER-25	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
ER-VGA	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
EL-25	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
EL-VGA	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
BKDR-16	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
BKDC-16	**32 KB**	**1024**	**Yes**	-	Yes	Yes	Yes	Yes	Yes
BKDL-16	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDR-16	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDL-16N	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDR-25	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDL-25	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDR-VGA	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDC-VGA	**32 KB**	**1024**	-	-	Yes	Yes	Yes	Yes	Yes
MKDL-VGA	**32 KB**	**1024**	-	-	Yes	Yes	Yes	-	Yes
MKDT-VGA	**32 KB**	**1024**	-	-	Yes	Yes	Yes	Yes	Yes
ERT-16	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	-	Yes
ECT-16	**32 KB**	**1024**	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes
ELT-16	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	-	Yes
ER-25T	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	-	Yes
EL-25T	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	-	Yes
ERT-VGA	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	-	Yes
ECT-VGA	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	Yes	Yes
ELT-VGA	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	-	Yes
ETT-VGA	**32 KB**	**1024**	-	Yes	Yes	Yes	Yes	Yes	Yes

Table 8