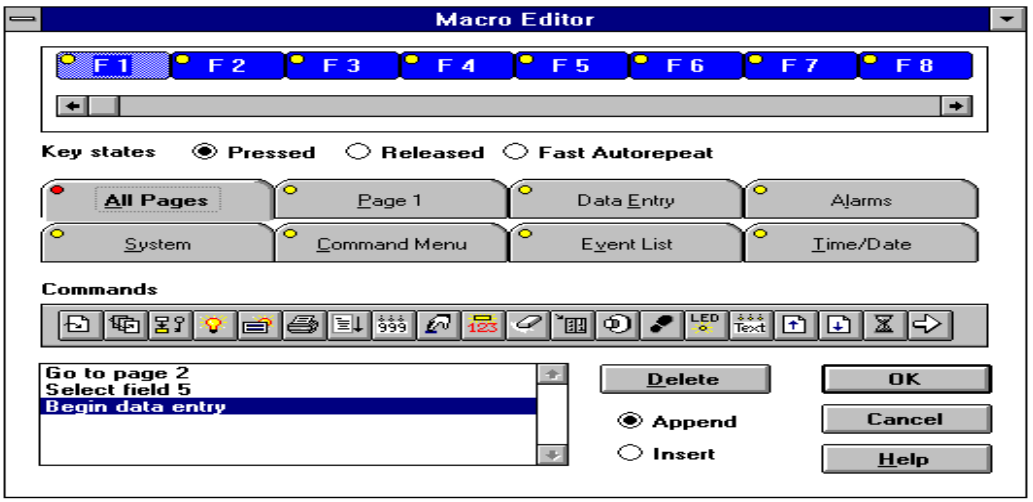
The Keyboard Macro Editor

The *Keyboard Macro Editor* is a feature in the *Designer™ for Windows™* software package that allows the user to associate specific functions with keys or touchcells on a UniOP panel. This feature may be accessed by either selecting *Keyboard Macro Editor* from the *Project* menu or clicking on the appropriate icon in the *Extra ToolBelt*.

Each of the available functions are called *elementary macro commands*. They can be accessed by clicking on the proper icon in the *Commands* toolbar from within the keyboard macro editor. Advanced commands, called *complex macro commands*, are composed of two or more elementary macro commands. For example, *Go to page 2* is an elementary macro command. *Go to page 2*, *Select field 5*, *Begin data entry* is a complex macro command composed of three elementary commands. Complex macro commands function by executing each of the elementary macro commands in the sequence in which they were entered.

The Keyboard Macro Editor Dialog Box



At the top of the Keyboard Macro Editor dialog box is a scrollable toolbar of panel keys that are available for programming. Use the arrow keys located beneath the toolbar to maneuver through the panel keys. *Note that not all keys are available on every panel.* A key is sele cted by single clicking on it with the left mouse button. The selected key will be displayed in a lighter color than the other keys.

Below the toolbar of panel keys are the *key states* radio buttons. The state can be selected by simply clicking on the proper radio button. The user can program a key to be active whenever it is *pressed*, *released*, or held down. The latter method is referred to as *fast autorepeat* and is useful when dramatically changing the value of a register. For example, suppose the us er has

programmed the F1 key to step a register up by a value of 1. If the user wants to change the value in the register from 20 to 200, they would have to press the F1 key 180 times if it were programmed in the pressed state. However, by programming the key in the fast autorepeat key state, the user can press and hold the key until it reaches the value of 200.

Underneath the key states radio buttons are the *index tabs*. Each index tab represents an operating mode of the UniOP panel. The currently selected operating mode is indicated by the index tab being displayed in the foreground with respect to the other tabs. The small circle located in the upper left-hand corner of each index tab is a program indicator. If the circle is red, this indicates that a key is programmed in that particular operating mode. Similarly, if the circle is yellow, there are no keys programmed in that particular operating mode.

Located beneath the index tabs is the *Commands* toolbar. Each elementary macro command is represented by an icon in this toolbar. If there is not enough room to display all of the icons, left and right arrow keys will be present at the ends of the toolbar, allowing the user to access all of the elementary macro commands available for a particular mode of operation. Once a command is selected, it will be displayed in the list box at the bottom left side of the dialog box. Commands can be inserted, appended, and deleted by using the buttons located to the right of the list box.

Operating Modes

The keyboard macro editor has eight different modes of operation. **Not all elementary macro commands are available in each operating mode** . The keyboard macro editor will only display those macros that are available for a particular mode.

The following modes of operation are available for programming:

? **System** - this mode is used for the global setup of toggle keys.
? **All Pages** - macros defined here will be active on every page of the project file.
? **Page n** - macros defined here will be active only when the panel is on page n (where n is an integer).
? **Data Entry** - keys programmed in this mode will be active only when the panel is in data entry mode.
? **Alarm** - macros defined here will be active only when the panel is in alarm mode.
? **Command Menu** - macros in this mode will be active only when the panel is in the command menu.
? **Event List** - keys programmed in this mode will be active only when the panel is in the event list mode.
? **Time & Date** - macros defined here will be active only when the panel is in the time and date mode.

A Note About the Relationship between All Pages Mode and Page n Mode

The relationship between the *All Pages* mode and *Page n* mode is particularly important to understand. A *single key* can be programmed in different operating modes to perform different functions. A macro programmed in *All Pages* mode will be active in all pages of the project. A macro programmed in *Page n* mode will be active only when the panel is on page n. **The macro that is programmed in Page n mode will override the macro that is programmed in All Pages mode only when the panel is on page n.**

For example, suppose a user has F1 programmed to *go to page 2* in *All Pages* mode, while also having it programmed for *begin data entry* in *Page n* mode (say, page 5). In this case, the only time that the panel will go into data entry mode when the F1 key is pressed is when the panel is on page 5. On all other pages of the project, pressing F1 will take the user to page 2.

Available Elementary Macro Commands

The available elementary macro commands for each mode of operation are listed below. The name of the macro is identical to the text that is displayed whenever the user moves the mouse over the icon.

System

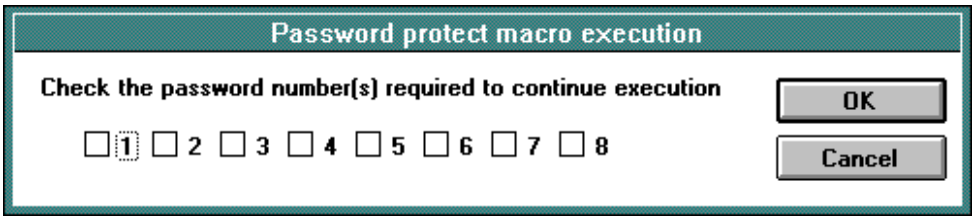
? **Set toggle key** - The key that is assigned to this elementary macro command will function like a toggle push-button, changing the value of the bit each time the key is activated. The bit may take on values of either 0 or 1. The user will be asked to specify the control relay bit which is to be toggled. *Note that a key programmed in this mode will function as a toggle push-button in all other modes as well.*

All Pages (note that all of these commands are available in Page n mode)

? **Go to page** - This command will cause the panel to display a specific page. The user will be asked to input the page number.

? **Return to initial page** - This will cause the panel to display the page that was displayed before the 'Go to page' macro command was executed.

? **Password protect -** This command allows the user to require that a password be entered before executing any macros that follow. If the password is not active, the panel will simply not execute any macro commands that follow. A dialog box will appear, allowing the user to specify which password(s) must be active. This dialog box is shown below.



? **Show Alarm List -** This command will switch the panel to Alarm mode and display the currently active alarms. This is designed to be used when a user does not want the alarm list to appear every time there is an alarm active, rather the user wants to be able to bring up the alarm list on demand. Note that the proper control bit in the RDA must be set to disable the automatic popup of the alarm list.

? **Show Event List -** This command will display all of the events that are currently stored in the event list.

? **Printout on/off -** This allows the user to print the current page, the alarm list, or the event list. This command toggles the printer; therefore if the printer is not printing, then toggling the key will cause the printer to begin printing. Likewise, if the printer is printing, then toggling this command will cause the printer to cease printing.

? **Scroll to line -** This command allows the user to specify the page row that is to be considered the topmost row of the display. Activating this command will scroll the panel to the 'new' topmost row. This is useful when there are more lines on a page than there are viewable lines on the panel.

? **Select data entry field -** This command allows the user to select the field they wish to edit. This only *selects* the field; to edit it the user must begin data entry. Note that fields are counted from *left to right, top to bottom* on the panel. **Attributes, time data fields, and date data fields are counted as fields**. The user should keep this in mind whenever selecting the field number.

? **Begin data entry** - This command will switch the panel into data entry mode. The user may now select the field and press ENTER to begin editing the value.

? **Data editing** - This command will allow the user to begin editing the value. This functions mainly as an ENTER key and should be used in a complex macro command following *begin data entry*.

? **Send command** - This command allows the user to send ASCII commands to the controller. Note that this command is only available with certain PLCs and motion controllers. When used with a motion controller, the user will be able to enter the ASCII string that is to be sent. When used with a PLC, the user will only be able to select from a given string of commands.

? **Data Entry Popup toggle** - This command will either enable or disable the numeric keypad that appears on the panel once the user enters data entry mode and presses the ENTER key (or uses the complex macro command begin *data entry* and *data editing*). The numeric keypad will appear on the panel by default. This command is mainly used if a user would wish to turn this keypad off.

? **Clear Event List** - This command will clear all of the entries from the queue of events.

? **Write to Controller** - This command allows the user to write values to the controller memory. The user will be prompted for the specific memory location, as well as the value to be written.

? **Toggle Relay** - Allows the key to behave as a toggle push-button. The user will be prompted for the controller bit which is to be toggled.

? **Step** - This command allows the user to increase or decrease the numeric value of a register. The user may enter the step size, as well as the minimum or maximum values the the register is not to exceed.

? **LED state** - This allows the user to set the state of any LED that is attached to the keys on the panel. The LEDs may take the value of ON, OFF, BLINK, or DEFAULT. The DEFAULT state is determined by the value of the corresponding LED bit in the reserved data area (RDA).

? **Scroll up** - This command will scroll the display up one line.

? **Scroll down** - This command will scroll the display down one line.

? **Wait** - Allows the panel to pause for a specified amount of time before executing the next macro command. The time entered for this command is in tenths of a second.

? **Attribute** - This allows the user to specify the display attribute of an area on the page. Available attributes are reverse, blink, and highlight. The user will be prompted for the row, column, width, and height of the area that the attribute is to affect.

? **Recipe Control** - Allows the user to perform different recipe functions, including downloading a particular parameter set, uploading a particular parameter set, and selecting a particular parameter set. The user must enter the page number and the parameter set that is to be affected. Entering a 0 for either will cause the current page/parameter set to be chosen.

? **Passwords** - This will request the user to enter a password. If passwords are not defined in the project, this command will have no effect.

? **Next page** - This will cause the panel to display the next page of the project, providing the user is not on the last page.

? **Previous page** - This will cause the panel to display the previous page of the project, providing the user is not on the first page.

? **Brighter display** - This command increases the brightness of the panel.

? **Dimmer display** - This command decreases the brightness of the panel.

? **Pass-through Mode** - This allows the user to enable or disable passthrough mode. This is designed so the user can go on-line with the controller without disconnecting any cables. This feature is known to work with some controllers using RS-232. Later versions of our software will include more protocols and controllers.

Data Entry

? **Go to page** - This will cause the panel to display a user-specified page.

? **Next field** - This will position the cursor on the next read/write field. Fields are sorted in the the direction left to right, top to bottom. This directionality defines what is considered to be the 'next' field.

? **Previous field** - This will position the cursor on the previous read/write field.

? **Field down** - This will position the cursor on the next read/write field directly below the the currently selected field. If the data fields are not aligned vertically, this command will have no effect.

? **Field up** - This will position the cursor on the next read/write field directly above the currently selected field. If the fields are not aligned vertically, this command has no effect.

? **Step** - This allows the user to increase or decrease the numeric value of a register. The user may enter a step size, as well as the minimum and maximum values the register is not to exceed.

? **Confirm** - This confirms the entered value and exits data entry mode.

? **Cancel** - This cancels the entered value and exits data entry mode.

? **Erase** - This will erase the text that has been entered in the data field.

? **Begin data entry** - This will switch the panel into data entry mode. The user can now select the field and press ENTER to begin editing the value.

? **Data editing** - This command will allow the user to begin editing the value. This functions mainly as an ENTER key and should be used in a complex macro command following *begin data entry*.

? **Wait** - Allows the panel to pause for a specified amount of time before executing the next macro command. The time entered for this command is in tenths of a second.

Alarm

? **Write to Controller** - This command allows the user to write values to the controller memory. The user will be prompted for the specific memory location, as well as the value to be written.

? **Toggle Relay** - Allows the key to behave as a toggle push-button. The user will be prompted for the controller bit which is to be toggled.

? **Wait** - Allows the panel to pause for a specified amount of time before executing the next macro command. The time entered for this command is in tenths of a second.

? **Page Mode** - This is used to return the panel to current page mode from alarm mode.

? **Acknowledge alarm** - This is used to acknowledge an active alarm.

? **Scroll up** - This will shown the next alarm, assuming more than one alarm is active.

? **Scroll down** - This will show the previous alarm, assuming more than one alarm is active.

? **Print alarms** - This will print all of the active alarms.

? **Go to alarm page** - The will cause the panel to go to a user-specified page.

Command Menu

? **Left** - Positions the cursor on the next command to the left of the currently selected command.

? **Right** - Positions the cursor on the next command to the right of the currently selected command.

? **Up** - Positions the cursor on the command directly above the currently selected command.

? **Down** - Positions the cursor on the command directly below the currently selected command.

? **Confirm** - Used to select the currently highlighted command (this functions as the ENTER key).

Event List

? **Scroll up** - Used to scroll the event list up.

? **Scroll down** - Used to scroll the event list down.

Time/Date

? **Next field** - Positions the cursor on the next read/write field. Fields are considered in the direction from top to bottom, left to right.

? **Increment** - Increments the selected field to the next value.

? **Decrement** - Decrements the selected field to the next value.

A Quick Start Example

This example describes the steps necessary to create a simple macro.

1. Place the panel into *Configuration Mode*.
2. Connect the panel to the personal computer using either a CA1 or a CA2 cable.
3. Start the *Designer for Windows™* software package. Make sure that the project file is set up to work with the panel you are using. This can be accomplished by selecting *Get Panel Resources* from the *Transfers* menu and choosing *OK*.
4. Activate the *Keyboard Macro Editor* by either selecting the proper icon in the *Extra ToolBelt* or by selecting *Keyboard Macro Editor* from the *Project* menu.

5. The *Macro Editor* dialog box will be displayed. Click on the key you wish to assign a macro to and click on *Pressed* beside of *Key states*. Click on the *All Pages* index tab. The macro is now set up to function whenever the key is pressed on any page of the project.
6. Click on the leftmost icon in the *Commands* toolbar. This icon represents the elementary macro command *Go to page*.
7. Another dialog box will pop up, allowing the user to enter the page number that the panel is supposed to go to whenever the key is pressed. In this case, we are going to have the panel go to page 2 whenever the key is pressed. Therefore, enter a 2 in this box and click on *OK*.
8. The list box located at the bottom left hand side of the *Macro Editor* dialog box will list the defined macro. Press *OK* to confirm the command. This will return the user to the page editor workspace.
9. Type the text 'Page 1' in the topmost row of the current page.

10. Press the *F7* key to create another page. Press the *Page Down* button on the keyboard to move to this page. Type the text 'Page 2' in the topmost row of this page.

11. Select *Download* from the *Transfers* menu. The project file will be downloaded to the panel.

12. When the download is completed, the panel will go into *Operation Mode* and display the text 'Page 1' that was entered in step 9.

13. Press the key to which the macro was assigned. The panel will go the second page of the project, indicated by the text 'Page 2' appearing on the display.

It is suggested to repeat this example using other macros in order to gain familiarity with the Keyboard Macro Editor and the effects the macros will have on the functionality of the panel.

Recommendations & Tips

1. Execution of the macro command requires time and processing power that comes from the panel's main processor. An example of a macro that might take a relatively long time to execute is given below. This type of macro should either be avoided or used at times when the panel's application is not critical. This example will send the first five pages of the project to the serial printer attached to the panel.

Go to page 1
Print page toggle
Wait 50 tenth(s) of a second
Go to page 2
Print page toggle
Wait 50 tenth(s) of a second
Go to page 3
Print page toggle
Wait 50 tenth(s) of a second
Go to page 4
Print page toggle
Wait 50 tenth(s) of a second
Go to page 5
Print page toggle

2. When using the macro command *Attribute*, the command will be written to the specified

screen location. For example, assume a user has a 4 line panel and has a key programmed to assign an attribute of reverse to the screen location of row 2, column 1, height of 1, width of 1. Wherever the user is at on the page, executing this macro will assign the reverse attribute to the second *displayed* row on the panel.

3. **It is recommended to not program the ENTER key**. Doing so may keep the user from being able to get into Configuration mode, confirming data entry, etc. If it is desired to program the ENTER key, program the key in Page n mode. This is done so that there is at *least* one page in which the ENTER key is not programmed, allowing the user to access the command menu.

4. If the user decides to program the 0 numeric key, *they may not be able to edit values on a page where 0 is also used as the INSERT key*.

5. If the user decides to program the arrow keys, *they may lose the ability to scroll between pages and/or numeric fields within the project*.

Technical assistance may be obtained :
In North America EXOR at 1-513-874-4665.
In Europe EXOR Italy 045 - 8779068