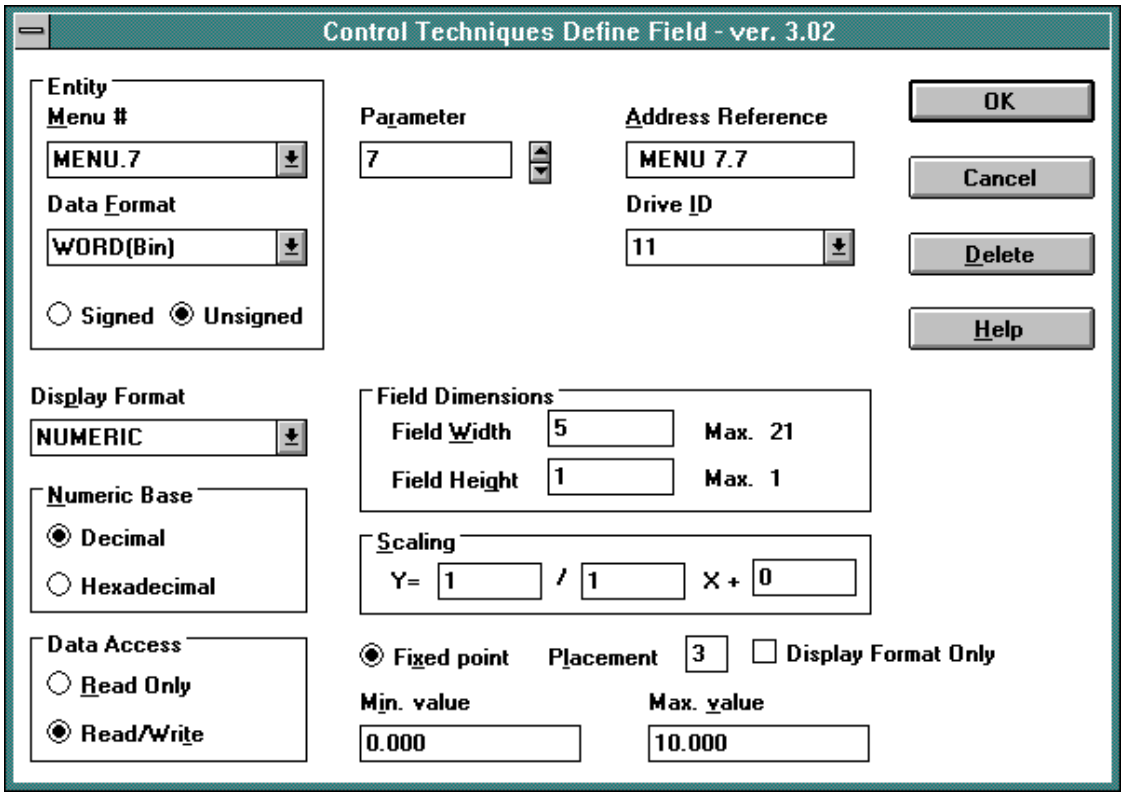
Using UniOP with Quantum III and Unidrive

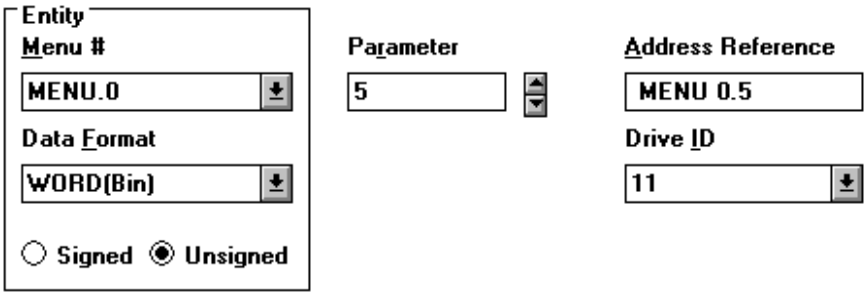
Before using an Exor *UniOP* panel with *Control Techniques' Quantum III* and/or *Unidrive*, a few items need to be addressed. It is necessary to understand the drive-specific information that is presented in this technote before attempting communications between the UniOP panel and either drive. The user must also have the drive operation manual(s) in order to be able to configure the drive parameters correctly.

When using a *Control Techniques* drive, the user will be dealing with *parameters*. A group of parameters is called a *menu*. To work with any parameter, the user must create a numeric field on the *Designer* screen. Doing so will bring up a define field dialog box (shown below) in which the user can enter parameter-specific information. Each section of this dialog box will be discussed in detail below.



Specifying the Menu and the Parameter Number

To address a particular parameter, the user needs to specify *both* the menu number and the parameter number. The menu can be selected by choosing the appropriate one within the *Menu #* combo box. The parameter can be chosen by selecting the proper numeric value within the *Parameter* spin control. For example, if the user wanted to work with menu 0, parameter 5, the setup should resemble the screen capture below.



Within the *Entity* box shown above, the user **must** specify if the parameter is *signed* or *unsigned*. This information can be found in the drive's operation manual within the menu parameter type descriptions. In the *Unidrive* manual, a "U" represents an unsigned (unipolar) number, whereas a "B" represents a signed (bipolar) number.

In the *Data Format* combo box, the user is only presented with the WORD(Bin) data format. There are some instances in the menu parameter type descriptions in which the parameter is said to be a bit. In these cases, Designer will only allow the word to take on a value of 0 or 1.

The *Drive ID* must be specified **only** if the user has a *Quantum III* **and** a *Unidrive* connected with the *UniOP* panel. The user must identify the drive for which the parameter is to be created. Entering an *11* in this combo box will create the parameter for the *Unidrive.* Entering a *22* in this combo box will create the parameter for the *Quantum III.* This involves some additional setup in the *Designer* software, as well as in each individual drive. This is discussed later in the section entitled *Using Quantum III and Unidrive with a UniOP Panel.*

Note: The slave ID's in each drive MUST be set above 10 for operation in a network. The Unidrive defaults to 11, however, the Quantum defaults to 01. This must be changed to 22 for correct operation with the UniOP panel.

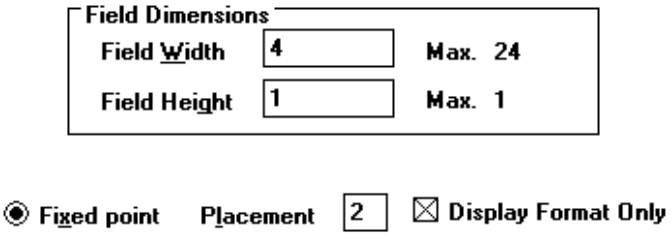
Note2: The amount of characters that the Unidrive can transmit in a data packet is unlimited.

However, the Quantum III is only capable of transmitting a maximum of five (5) characters. For this reason, the proper drive MUST be selected.

Numeric Format and Parameter Access

The user must also specify the *Numeric Base* of the parameter, either *decimal* or *hexadecimal*. This is accomplished by clicking on the desired radio button. The *Data Access* for the parameter must also be specified. This declares the parameter as either a read/write field or a read only field. The access properties of each parameter can be found in the drive's operation manual within the menu parameter type descriptions.

Field Dimensions

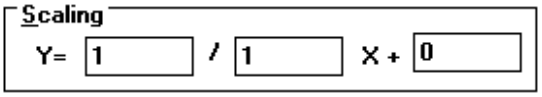


When creating a field, the *field dimensions* must be set. The *field width* is the number of characters that will be displayed on the panel. The *field height* represents the height of the field in characters and is fixed at a value of 1.

Fixed point allows the user to display data to a specified number of decimal places. This can be accomplished by clicking on the *Fixed point* radio button and entering the number of decimal places to be displayed in the *Placement* box. If a value for a parameter must be entered as a fixed point value, it is necessary for the user to implement the *Fixed point* radio button and the *Placement* box in order for the data to be correctly interpreted. Valid fixed point values can contain no more than 5 numbers after the decimal point.

Note: ***Whenever the user is displaying fixed point values on the UniOP panel from the Quantum III, the Display Format Only check box must be selected.*** *This is because the Quantum III will not accept a decimal point. Using the Display Format Only check box allows the user to display a fixed point value on the UniOP while working with an integer value in the Quantum III.*

Scaling



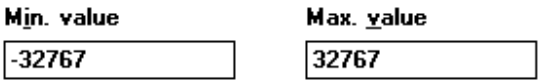
The scaling equation is defined as:

$$Y = (A / B) * X + C$$

Where,
Y = Scaled value displayed
X = Drive data value
A,B,C = Scaling operators - these are the three entry boxes located within the scaling equation

Scaling allows the UniOP panel to display values in a different form than what is actually contained in the drive. For example, if a value in the drive is 350, but the user wishes to display 35, this can be accomplished by setting A=1, B=10, and C=0.

Minimum and Maximum Values



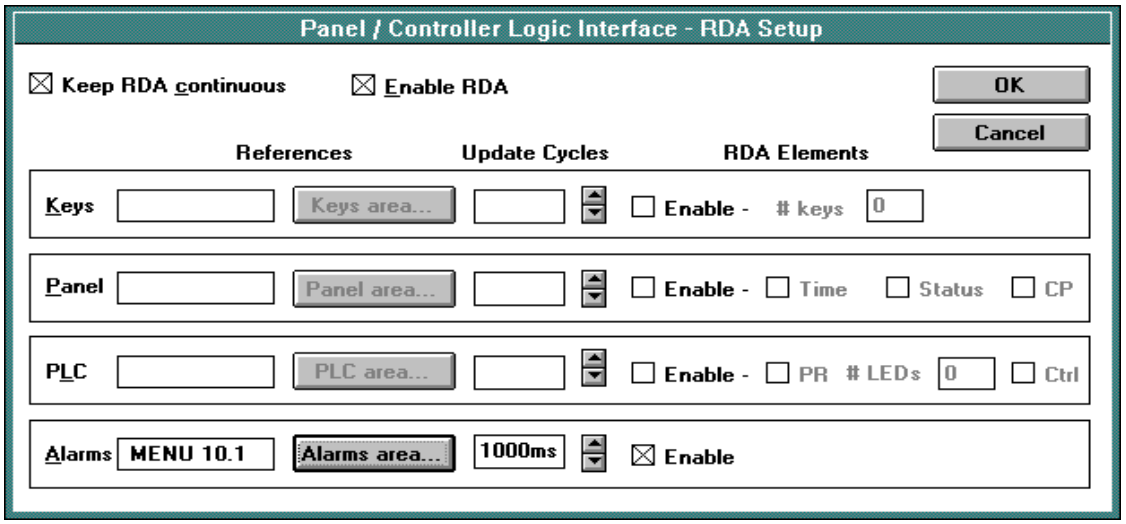
The minimum and maximum values for the parameter must be specified. If the range of values that lie between these two numbers is exceeded, the *UniOP* panel will display asterisks instead of a numerical value.

Note: When using scaling, the minimum and maximum values refer to the scaled value, not the value in the drive!

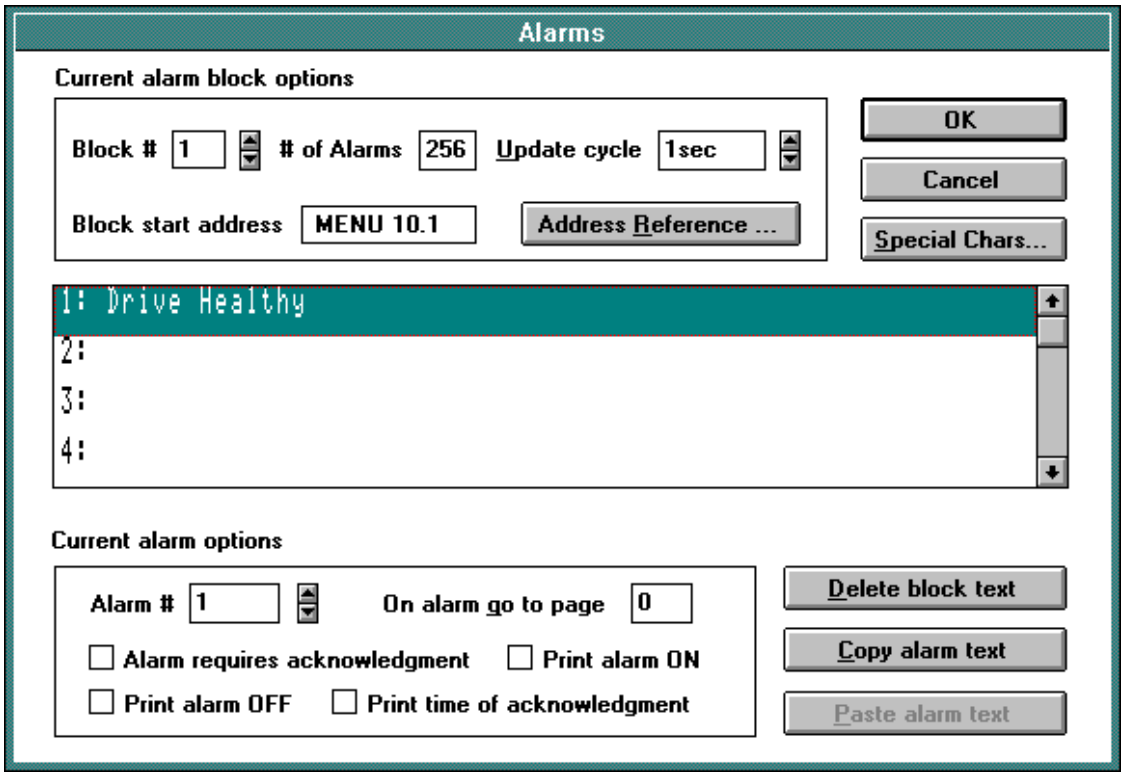
Alarms

Alarms are currently available for the *Unidrive*. Two steps must be taken in the *Designer* software in order to use alarms.

First, select *RDA Setup* from the *Project* pulldown menu. This will bring up a dialog box in which the user needs to select the *Enable* check box within the *Alarms* section. Press the *Alarms area...* button and change the starting address to menu 10, parameter 1. The dialog box should resemble the one shown below.



Now the user needs to enter the alarm messages into the *UniOP* panel. Select *Alarms* from the *Project* menu. This will bring up a dialog box in which the user can choose between *Compatibility Mode* and *Enhanced Mode* alarms. Selecting *Enhanced Mode* will bring up a dialog box where the alarm messages can be entered. **Make sure that the *Block Start Address* is set to *menu 10.1*.** The user can enter alarm messages by simply clicking on the numeric value that corresponds to the parameter and entering the text. For example, the alarm message *Drive Healthy* is to be entered for parameter 1. Click on the number 1 (this should highlight the entire line) and enter the text. This dialog box is shown on the top of the next page, followed by a table of all of the available alarms.



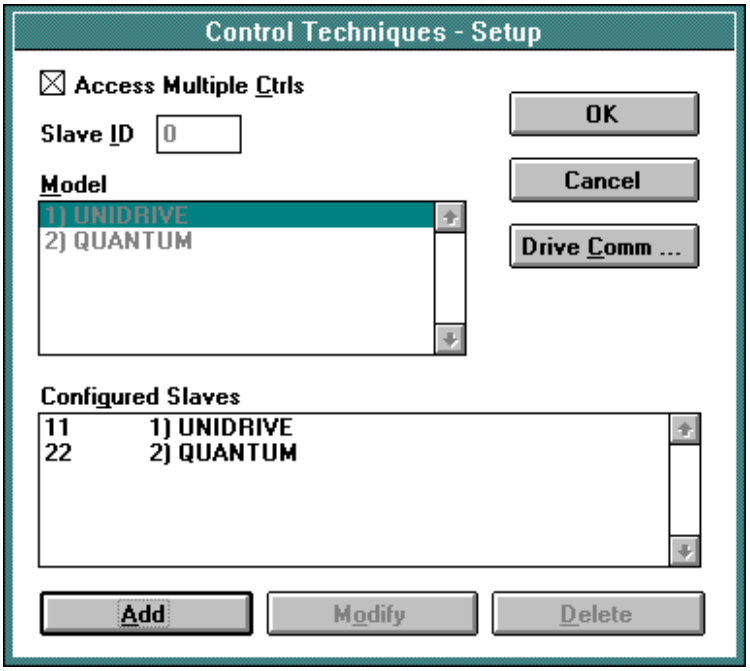
Alarm Address	Alarm Description
10.01	Drive Healthy
10.09 10.12	Current Limit Dynamic Brake Alarm
10.15	Mains Loss
10.16	Motor Thermistor Over Temperature
10.17	Motor Overload Alarm
10.18	Heatsink Temperature Alarm
10.19	Ambient Temperature Alarm
10.32	External Trip
10.20	Last Trip

When the drive trips, the upper display will indicate a *trip code*, ranging from 1-49. Descriptions of these codes can be found in the *Unidrive Guide to Getting Started.* If a trip code appears with a numeric value equal to or greater than *50*, a *hardware* problem has occurred.

Using Quantum III and Unidrive with a UniOP Panel

As was mentioned earlier, if the user has both a *Unidrive* and a *Quantum III* connected with a UniOP panel, an additional setup is necessary to configure the node numbers for each drive. This is done so that the UniOP panel can correctly monitor or change the parameters on the proper drive.

This setup can be accomplished within the *Designer* software by selecting *Controller Setup* from the *Project* pulldown menu. This will present the user with a dialog box in which there is a check box entitled *Access Multiple Ctrls* which **must** be selected. Doing so will add a section to the bottom of the current dialog box entitled *Configured Slaves.* Clicking the *Add* button will bring up another dialog box in which the user can select the *Slave ID* for each drive. Select *Unidrive*, enter an *11* in the *Slave ID* box, and click on *OK.* This will return the user to the initial dialog box. Select the *Add* button again, select *Quantum*, enter a *22* in the *Slave ID* box, and press *OK.* The configuration of the drives is now complete. The dialog box on the user's screen should resemble the one shown below.



Reminder: The default node setting contained within the Quantum III is set at 01. This ***must*** *be changed to 22 in order for the UniOP panel to be able to recognize the drive.*

Technical assistance may be obtained :