Knob Manager (KM) Operators Guide – October 8, 1993

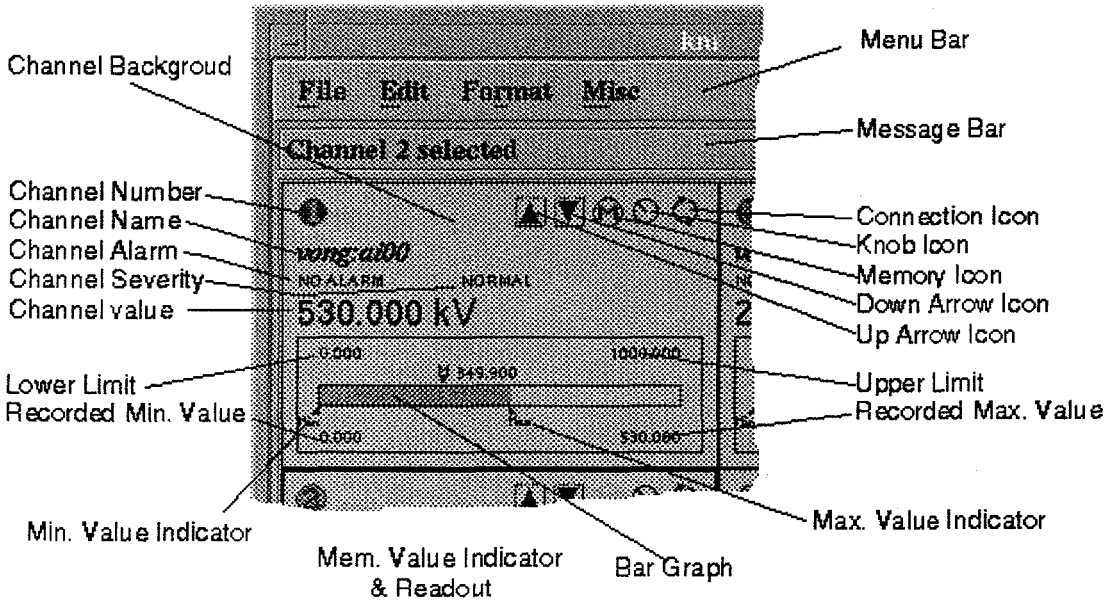
- Introduction
- Getting Start
- TOPICS
  - Attach a knob to a process varaiable
  - Enable or Disable knob(s)
  - Adjust Gain
  - Using Configuration File
  - Using Memory Function
  - Select one or multiple channel
  - Using Up and Down Arrow Icon
  - Command Line Options

Introduction

KM, Knob Manager, is a tool which enables the user to use the SUNDIALS knob box to adjust the settings of the control system. The followings are some features of KM:

- dynamic knob assignments with the user friendly interface.
- user–defined gain for individual knob.
- graphical displays for operating range and status of each process variable is assigned.
- backup and restore one or multiple process variable.
- save current settings to a file and recall the settings from that file in future.

The layout of the KM resembes the physical layout of the SUNDIALS knob box.



The KM is divided into three area: the **Menu Bar**, the **Message Bar** and the **Display**. The **Display** consists of eight rectangles called **Channels** here. Each channel represents a physical knob of the SUNDIALS knob box. A **Channel Number** at the top left corner of each channel is the corresponding knob number of SUNDIALS knob box.

Under the channel number there are four text fields : **Channel Name, Channel Alarm Status, Channel Alarm Severity** and **Channel Value.** The channel name shows the EPICS's process variable name assigned to this channel. The channel value shows the process variable's value. The channel Alarm Status and channel Alarm Severity shows the process variable's alarm status amd severity. If the channel does not have an assignment yet, the channel field shows *No Connection*; the channel value shows *Unknown !*; the channel alarm status and severity shows *no status* and *no severity* respectively.

At the top right corner of each channel, there are five status icons. Starting from the right, they are **Monitor Icon, Knob Icon, Memory Icon, Down Arrow Icon** and **Up Arrow icon.** The color of the icons represents the state of the icons. The solid black means ENABLE or ACTIVE, and the light grey means DISABLE or INACTIVE. The monitor icon shows the status of connection. The knob icon indicates the knob for this channel being active or inactive. The memory icon indicates whether any value is stored in the memory of this channel. The up and down arrow icon indicates whether the icons themselves are active.

The rectangle under the Channel Value is the **Graph Area.** it only becomes active after a prcess variable is assigned and the connection is success. The **Bar Graph** is sitting at the center of the graph area with two small pointers attached to its bottom. One pointer label as max and the other pointer label as min are called **Maximum Value Indicator** and **Minumum Value Indicator.** The maximum value indicator shows the maximum value being recorded since last connection or last reset. The minumum value indicator shows the minumum value. The number at the upper left corner is the lower range of the bar graph indicator and the number at the upper right corner is the upper range of the bar graph indicator. The lower left corner is the value of the min pointer and the upper left corner is the value of the max pointer.

Getting Start

To Invoke KM, type "km" on the command line. Move the mouse pointer over the label "No Connection" of the top left rectangle with the label "1". Click the left mouse button twice and a small window pop up with a text entry field labeled "Process Variable Name". Move the mouse pointer over text entry field of the pop up window, enter the process varaible name into the text entry field, and hit "Return" key after. If the connection is successful, the knob 1 of the SUNDIALS is attached to the process variable.

For using the KM with MEDM, move the mouse pointer over the controller which you want to attach to the knob, hold down the middle mouse button and drag the mouse pointer over one of the eight rectangle. Release the button. A window with a text entry box will pop up. Hit 'return" or click "OK" button at the bottom of the window to do the attachment.

Attach a Knob to a Process Variable

Double click the channel name of the channel which you want to use to bring up the process variable name entry name. Enter the process variable name into the text entry, click to "OK" button or hit "RETRUN" key to attach the knob channel to the process variable.

Using Drag and Drop

Move the mouse pointer over the object which contains the process variable name, hold down the middle mouse button and drag the mouse pointer over on eof the eight rectange. Release the button. A window with a text entry box will pop up. Hit 'return' or click 'OK' button at the bottom of the window to do the attachment.

Enable or Disable Knob(s)

The Knob can be disable or enable by either using the knob icon or *misc* menu in the menu bar.

For using the knob icon, move the mouse pointer over the knob icon of the channel(s) you want to enable or disable. Hold down the *right* mouse button to pop up the menu, drag the mouse pointer over the *enable* or *disable* entry of the menu and release the mouse button to enable or disable the knob.

For using the *misc* menu in the menu bar, select one or multiple channels you want to do the change. Move the mouse pointer over the word *misc* in the menu bar, hold down the *left* button to bring up the *misc* menu. Drag the mouse pointer over the *Dial(s)* entry to pop up submena. Drag the mouse pointer over *enable* entry and release the mouse button to enable knob(s) or drag the mouse pointer over *disable* entry and release the mouse button to disable knob(s)

Adjust Gain

Bring Up the Gain Controls Panel

For using the *misc* menu in the menu bar, select one or multiple channels you want to adjust the gain(s), move the mouse pointer over the word *misc* in the menu bar, hold down the *left* mouse button to pop up the *misc* menu and drag the mouse pointer over the *gain* entry and release the mouse button.

For using the pop up menu of the channel value field, move the mouse pointer over the channel value of the channel you want to adjust the gain, hold down the *right* mouse button to pop up the menu, move the mouse pointer over the menu entry *gain* and release the mouse button.

Enter Gain into the Text Entry Box

Move the mouse pointer over text entry box labeled *incremental step*. Click the text entry box once to activate the cursor. use the arrow keys and delete key to do the change. After the edit, click the *apply* button once to use the new gain.

Increase or Decrease the Gain Using the Icons

Inside the rectangle under the label *Dial and Slider Gain Controls*, there are six icons. From left to right, click the left arrow icon with the *left* mouse button multiply the current gain by 10 times, click the right arrow icon with the *left* mouse button divide the current gain by 10, click the *X100* icon multiply the gain by 100 times, click the *X10* icon multiply the gain by 10 times, click the *divided by 10* to divide the current gain by 10 times and *divided by 100* icons to divide the current gain by 100 times. Click the *apply* button at the bottom of the window to use the new gain.

Using Configuration File

Save Current Settings to a Configuration File

Move the mouse pointer over the word *File* and hold down the *left* mouse button to bring up the file dialog window. Move the mouse pointer over the text entry box with the label *selection*. Enter the file name and click "OK" button at the bottom of the window to save current settings into the file.

Recall Settings from a Configuration File

Move the mouse pointer over the word *File* and hold down the *left* mouse button to bring up the menu. Drag the mouse pointer over the *Load* entry of the *File* menu and release the mouse button to bring up the file dialog window. Select the directory and file , and click "OK" button to load the settings from the file.

Using the Memory Function

Store the current value into the memory

For using memory icon, move the mouse pointer over the memory icon of the channel you want to store, hold down the *right* mouse button to pop up the menu, drag the mouse pointer over the *store* entry in the menu and release the mouse button.

For using the *misc* menu in the menu bar, select one or multiple channels you want to store, move the mouse pointer over the word *misc* in the menu bar and hold down the *left* mouse button to bring up the *misc* menu, drag the mouse pointer over the *memory* entry to pop up the *memory* sub–menu, drag the mouse pointer over the entry *store* and release the mouse button.

Recall the value from the memory

For using memory icon, move the mouse pointer over the memory icon of the channel you want to recall, hold down the *right* mouse button to pop up the menu, drag the mouse pointer over the *recall* entry in the menu and release the mouse button.

For using the *misc* menu in the menu bar, select one or multiple channels you want to recall, move the mouse pointer over the word *misc* in the menu bar to bring up the *misc* menu, drag the mouse pointer over the *memory* entry to pop up the *memory* sub–menu, drag the mouse pointer over the entry *recall* and release the mouse button.

Clear the memory

For using memory icon, move the mouse pointer over the memory icon of the channel you want to clear, hold down the *right* mouse button to pop up the menu, drag the mouse pointer over the *clear* entry in the menu and release the mouse button.

For using the *misc* menu in the menu bar, select one or multiple channels you want to clear, move the mouse pointer over the word *misc* in the menu bar to bring up the *misc* menu, drag the mouse pointer over the *memory* entry to pop up the *memory* sub–menu, drag the mouse pointer over the entry *clear* and release the mouse button.

Select One or Multiple Channels

Select a channel

Move the mouse pointer over the channel you want to select and click the *left* mouse button once. A thin rectangle will draw around the selected channel and the background color of the channel number will change.

Select multiple channels

Move the mouse pointer over one of the channels you want to select. Hold down the *shift* key and click the *left* mouse button once. Repeat the same action on the other channels. To de–select a channel, hold down the *shift* key and click the *left* mouse button on the channel to toggle the selection.

Select all channels

Move the mouse pointer over the word *edit* of the menu bar and hold down to *left* mouse button to pop up

the *edit* menu to select the entry *Select All* to select all the channels.

Using Up and Down Arrow Icons

Enable or Disable Both Arrow Icons

The funtions of the up and down arrow icons can be enabled or disabled by moving the mouse pointer over either icon, holding down the *right* mouse buttons to pop up a menu, dragging the mouse pointer over the *enable* or *disable* menu entry to enable or disable the icon functions.

Using Up and Dowm Arrow Icons to Adjust the Channel value

The up and down arrow icons function as two buttons when using with the *left* mouse button. Click the *left* mouse button with the mouse pointer over the up arrow icon to increase the channel value by one increment or over the down arrow icon to decrease the channel value by one increment. The value of the increment is defined in the gain controls.

Hold down the *left* mouse button over the up or down arrow icons to continuously increase or decrease the channel value. Release the *left* mouse button to stop.

Command Line Options

```
  medm [-noDial] [-ch < [-fileName <
       [-size<

  -noDial                startup km with knob function disable
  -ch <              startup km with a process variable
                         name <
  -filename <   startup km with the configuration
                         file named <
  -size<        startup km with the specific size.
                         for horizontal configuration, the
                         following sizes are supported :
                             -size4x2
                             -size4x1
                             -size3x2
                             -size3x1
                             -size2x2h
                             -size2x1
                             -size1x1
                         for vertical configuration, the following
                         sizes are supported :
                             -size2x4
                             -size1x4
                             -size2x3
                             -size1x3
                             -size2x2
                             -size1x2
                             -size1x1
Example #1 :
   km -noDial -size1x1 -ch frequencyCounter1

   Bring up KM with knob disable, one channel only, using
   the process variable name "freqencyCounter1".

Example #2 :
```

```
km -filename km.cnfg

Bring up KM and the load the setting from the configuration
file named "km.cnfg".
```

DISCLAIMER