

CAD Assist

Presents

AccuDraw

Instructor

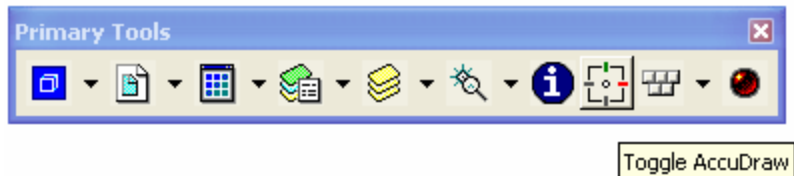
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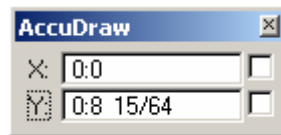
ACCUDRAW

AccuDraw gives user an easy way to input accurate points. By default with MicroStation V8 AccuDraw will automatically be activated when you first open a file. We will now go through the basic of AccuDraw.



Operation

1. To Start AccuDraw select the AccuDraw icon from the Primary Tool Box.
2. Once AccuDraw is started, the AccuDraw Toolbox will appear.



SHORT-CUT KEY-INS FOR ACCUDRAW

To operate AccuDraw you must learn the short cut Key-ins.

Enter	Smart Lock	AccuDraw Lock Smart	
Space	Change Mode	AccuDraw Mode	
O	Set Origin	AccuDraw SetOrigin	
V	View Rotation	AccuDraw Rotate View	
T	Top Rotation	AccuDraw Rotate Top	
F	<i>Front Rotation</i>	<i>AccuDraw Rotate Front</i>	<i>3D</i>
S	<i>Side Rotation</i>	<i>AccuDraw Rotate Side</i>	<i>3D</i>
B	Base Rotation	AccuDraw Rotate Base Toggle	
E	<i>Cycle Rotation</i>	<i>AccuDraw Rotate Cycle</i>	<i>3D</i>
X	Lock X	AccuDraw Lock X	
Y	Lock Y	AccuDraw Lock Y	
Z	<i>Lock Z</i>	<i>AccuDraw Lock Z</i>	<i>3D</i>
D	Lock Distance	AccuDraw Lock Distance	
A	Lock Angle	AccuDraw Lock Angle	
L	Lock Index	AccuDraw Lock Indexing in	
RQ	Rotate Quick	AccuDraw Rotate Quick	
RA	Rotate ACS	AccuDraw Rotate ACS	
RX	<i>Rotate about X</i>	<i>AccuDraw Rotate X</i>	<i>3D</i>
RY	<i>Rotate about Y</i>	<i>AccuDraw Rotate Y</i>	<i>3D</i>
RZ	Rotate about Z	AccuDraw Rotate Z	
?	Show Shortcuts	AccuDraw Dialog Shortcuts	
~	Bump Tool Setting	AccuDraw Bump ToolSetting	
GT	Go to Tool Settings	Dialog ToolSetting	
GK	Go to Key-in	Dialog CmdBrowse	
GS	Go to Settings	AccuDraw Dialog Settings	
GA	Get ACS	AccuDraw Dialog GetACS	
WA	Write to ACS	AccuDraw Dialog SaveACS	
P	Point Key-in (single)	Point Key-in Single	
M	Point Key-in (multi)	Point Key-in Multiple	
I	Intersect Snap	Snap Intersect	
N	Nearest Snap	Snap Nearest	
C	Center Snap	Snap Center	
K	Snap Divisor	AccuDraw Dialog SnapDivisor	
U	Suspend AccuSnap	AccuSnap Suspend	
J	Toggle AccuSnap	AccuSnap Toggle	
Q	Quit AccuDraw	AccuDraw Quit	
Esc	Moves Focus from AccuDraw Box – Tool Settings – Key-In window		
Esc +Shift	Moves Focus from Key-In – Tool Settings – AccuDraw Box		

NOTE: The Focus must be in AccuDraw for any shortcut key-in to work. You can tell when the focus is in AccuDraw box when you will see a line flashing for the cursor or if the AccuDraw toolbox is not docked the title bar will be highlighted blue.

SHOW SHORTCUTS



To get help with the shortcut key-ins type the “?” on the keyboard. The “?” key will bring up the show shortcuts dialog box.

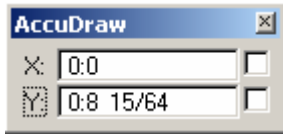
You can scroll through the list of shortcuts in the dialog box. Notice at the bottom you have the option for a button for **Run** which will activate that shortcut that you have highlighted. The **Edit** button will let you edit a shortcut key-in. And the **New** button will allow you to customize and create additional shortcuts.



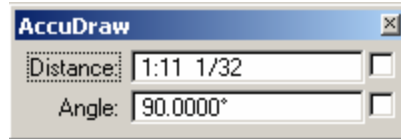
Note: Training for creating new shortcuts and editing existing shortcuts is covered in the Customizing MicroStation training class.

CHANGE MODE

With your focus in the AccuDraw dialog box - press the **Spacebar** to toggle modes between XY and Distance, Angle.



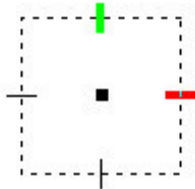
XY Mode



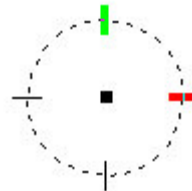
Distance & Angle Mode

COMPASS

The AccuDraw compass will appear on the view when you pick the first data point or by using the origin command. Notice that AccuDraw shows by default the **RED** axis is the X and the **GREEN** axis is the Y. The compass will appear SQUARE in the XY mode and ROUND in the distance and angle mode.



XY Mode



Distance & Angle Mode

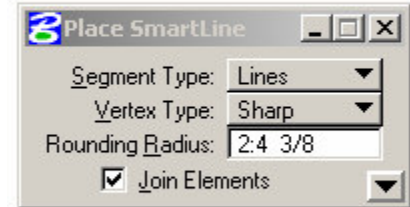
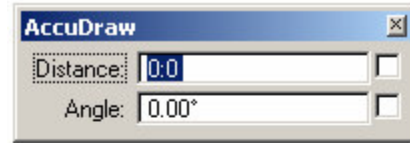
ESC



The Esc key can be used to move from the AccuDraw dialog to the tool settings dialog box to the Key-In window.

If the Key-In window is not open, you can use the ESC key to toggle between the Tool settings window and the AccuDraw dialog box.

If the Key-In window is open, the ESC command will end there and stay. To back out of the Key-In window – use the ESC + Shift key. This will take from the Key-In window to the Tool settings and then back to AccuDraw.



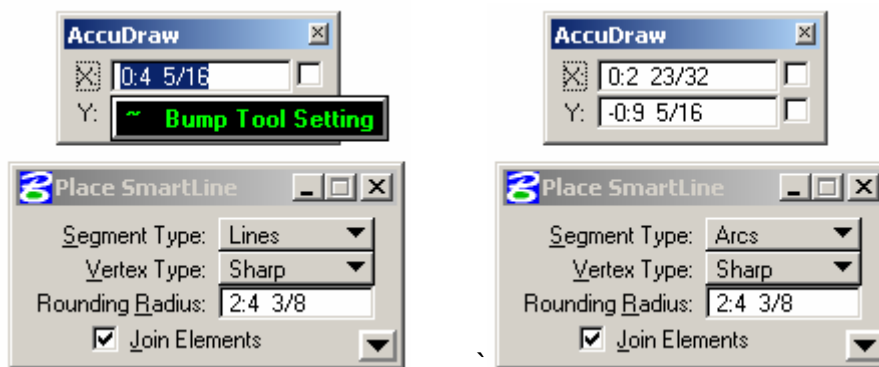
BUMP TOOL SETTING



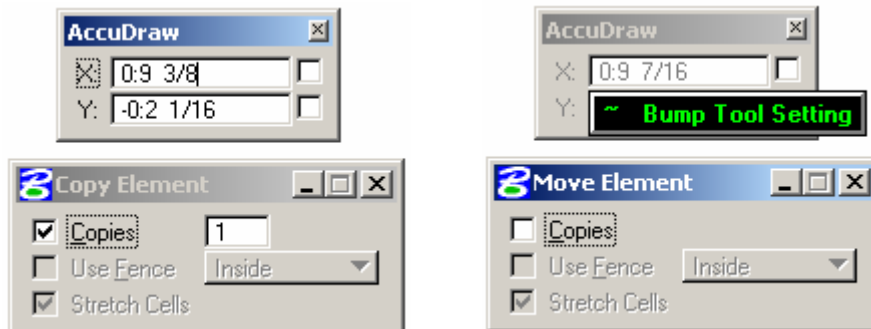
The Bump Tool Setting shortcut toggles the **first** item in the tool settings dialog box. The bump key is the “~”, usually right under the <Esc> key—there is no need to press the <Shift> key.

Key-in: *accudraw bump toolsetting.*

This Example show how using the Bump key to change the Tool Setting on Place SmartLine from a Segment Type Line to Arcs.



This Example shows how using the Bump Key toggles the Copies on and off.

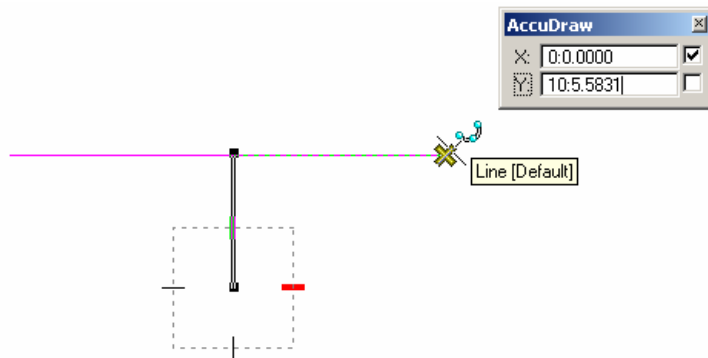
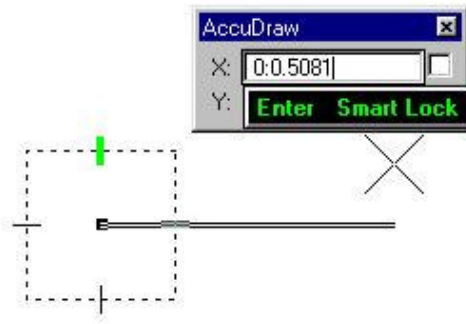


ENTER - SMART LOCK



Always with your focus in AccuDraw by using the ENTER key - AccuDraw will jump to the closest XY axis on the compass.

The Smart Lock is a good tool to use to align elements to existing ones. Start by placing you element, and then hit the Enter to lock the angle, now move your cursor onto the element to align with, and then click a DATA Point. By using this tool it eliminates the step of having to go back and extended the element.



ORIGIN

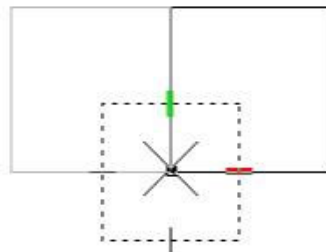


At the center of the compass is the origin. Normally the origin appears with the first Data Point of the command or either the origin is located at the last point placed. You can move the origin to a location by using AccuSnap to identify the point or by using a manual tentative snap point and then selecting the “O” on the keyboard. The origin now will be placed at the location of your snap or tentative point.

Let me give you an example of why you need to move the origin. If we want to copy a block say five feet from the right corner of the original block. This can be done very easily with AccuDraw and the Origin short cut key-in.

Operation

1. Place the first block.
2. Activate AccuDraw.
3. Select the Copy command.
4. SNAP to the left corner of the Block and accept with a DATA Point.
5. SNAP to the right corner - then key-in "O" from the keyboard. The origin is now located at the tentative point.
6. Stretch your cursors to the right hit ENTER to lock to the X-axis, and then type 5.
7. Place a DATA Point to accept the location.

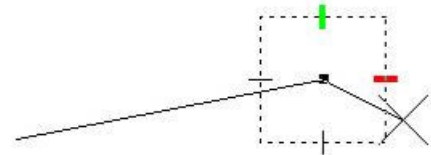


VIEW ROTATION



The AccuDraw has a short cut key to rotate the compass square with the view. By just selecting the "V" key from the keyboard you can rotate the compass square with the view.

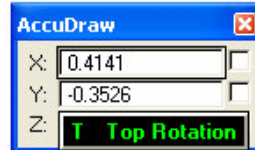
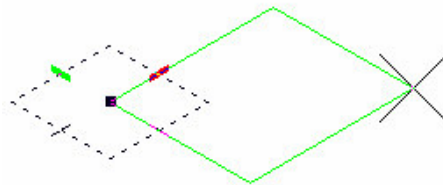
By default without changing the AccuDraw setting the compass rotates to the angle of the element being placed. Use the "V" view rotation key in to make the compass square with the view.



TOP ROTATION

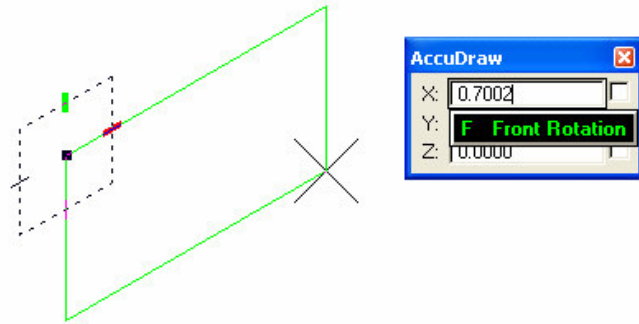


With the focus in the AccuDraw window – press a "T" on the keyboard. You will see the AccuDraw compass rotate to the Top View orientation. Example is captured from the Isometric View.



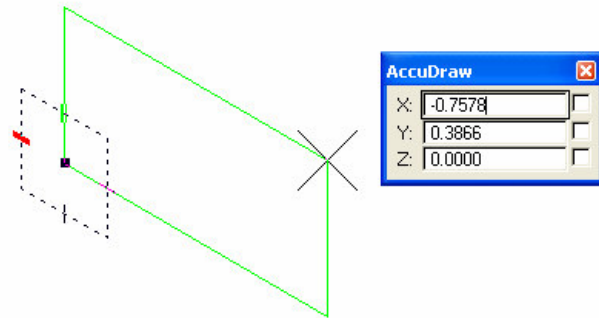
FRONT ROTATION

With the focus in the AccuDraw window – press a “F” on the keyboard. You will see the AccuDraw compass rotate to the Front View orientation. Example is captured from the Isometric View.



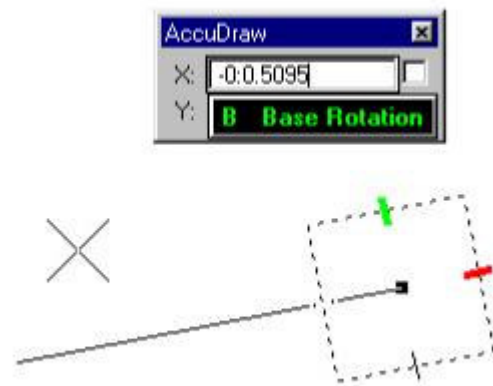
SIDE ROTATION

With the focus in the AccuDraw window – press a “S” on the keyboard. You will see the AccuDraw compass rotate to the Side View orientation. Example is captured from the Isometric View.



BASE ROTATION

The Base Rotation command "B" will rotate the compass back to the previous rotation. By continuing to hit the “B” key you will be able to toggle back and forth between the Base Rotation and the View Rotation.



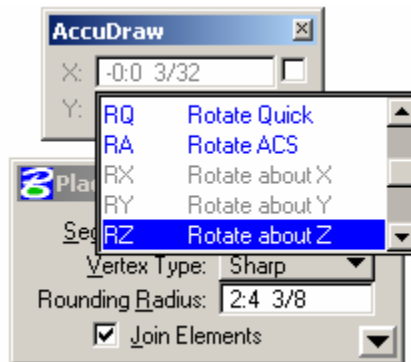
CYCLE ROTATION



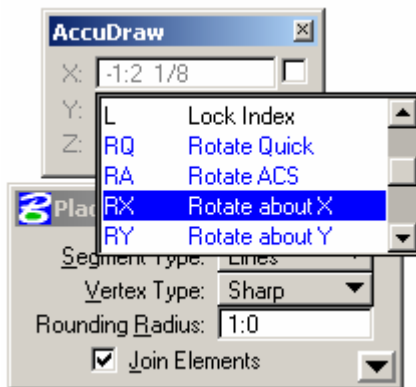
When in a 3D file you can use the “E” short cut key to cycle through the view orientations – View, Top, Front and Side.

ROTATING 90°

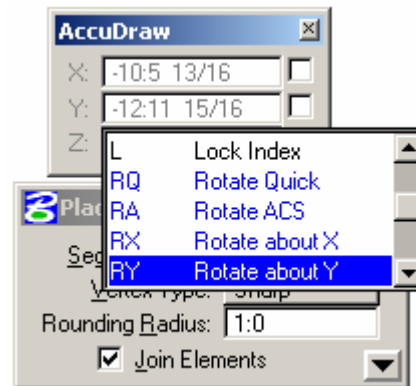
AccuDraw provides three key-ins for rotating the compass 90°. You can use all three key-ins in a 3D design but the “RZ” key-in will work on the 2D design too.



Rotate about Z (*works in 2D or 3D*)



Rotate about X 3D

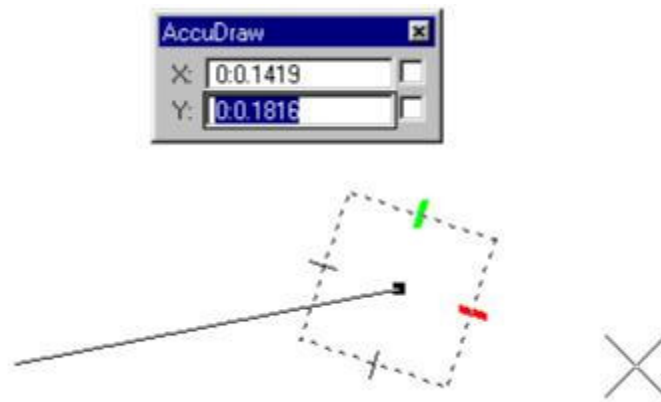


Rotate about Y 3D

ROTATE QUICK

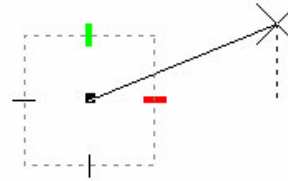


If you would like to rotate the compass to a different angle, Rotate Quick "RQ" short cut key in will work. Type "RQ" and notice that now you can rotate the compass to any angle, select a DATA point at the desired location.



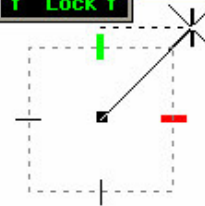
LOCK X

Locks and unlocks the X value.



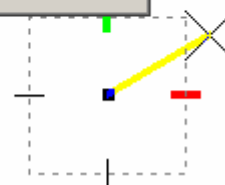
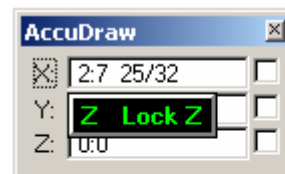
LOCK Y

Locks and unlocks the Y value.



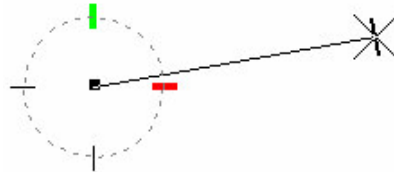
LOCK Z

Locks and unlocks the Z value.



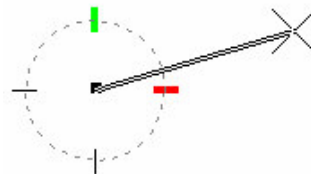
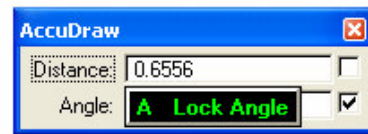
LOCK DISTANCE

Locks and unlocks the Distance value.



LOCK ANGLE

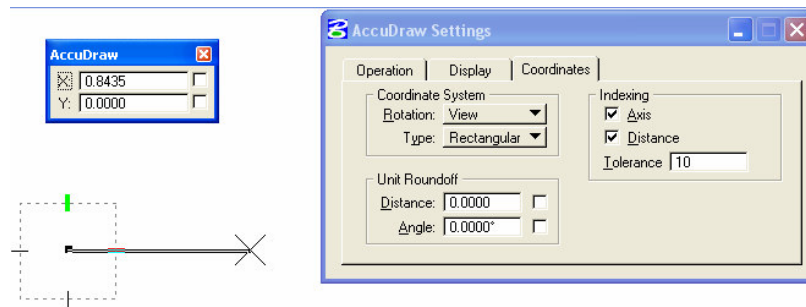
Locks and unlocks the Angle value.



LOCK INDEX



By default Indexing for the Axis and Distance is ON. First you need to understand what the indexing does. When you move your cursor within the tolerance of the Axis you will see AccuDraw lock onto the Axis. When you move your cursor close to the same Distance again it will lock onto it. Lock Index allows you to toggle the indexing On or Off.



A good example of when the tool will be useful is when you need to place a line close to the axis but not exactly on it. Use the “L” Lock Index to prevent the line from jumping onto the axis.

POINT KEY-IN SINGLE OR MULTIPLE



The AccuDraw Point Key-in box gives the user an easy way to do precise input. This replaces the old way in which we use to have to type: XY=0,0; DI=10,45; DL=5,5; or DX=5,5. By using the "P" the dialog box only stays open to enter one point. Then by using the "M" the dialog box stays open



until you manually close it. This dialog box allows you to select what type of Key-in you're using and type only the **DATA** needed. An **ENTER** Key is required for inputting the data.

Absolute (xy=) This is the way to place a DATA point at the true coordinate.

Type: X value, Y value, Z value Enter

Delta (dl=) This point using the absolute coordinate system is relative from the last **DATA Point** or from a tentative point.

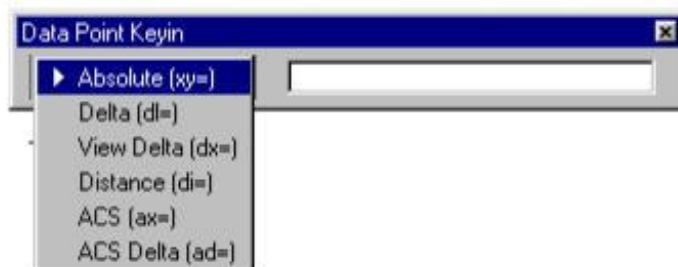
Type: X value, Y value, Z value Enter

View Delta (dx=) This point using the view coordinate system is relative from the last **DATA Point** or from a tentative point.

Type: X value, Y value, Z value Enter

Distance (di=) This place a point giving the Distance and the Angle.

Type: Distance, Angle Enter.



ACCUDRAW AND ACCUSNAP

When using AccuSnap, in conjunction with AccuDraw, you can use the following AccuDraw shortcuts:



U — suspends AccuSnap for the complete command. Once another command is selected, AccuSnap will be enabled.

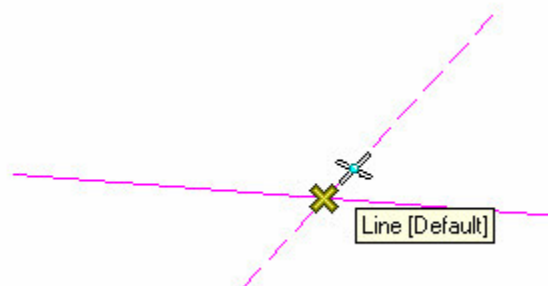


J — toggles AccuSnap off/on.

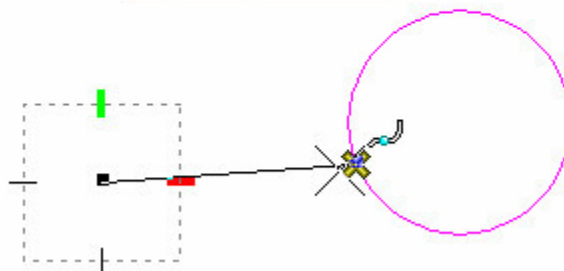
SNAP MODES

AccuDraw also you to change the snap mode for the next snap suing the following:

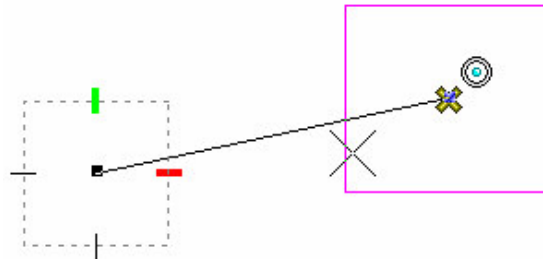
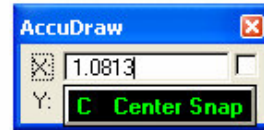
I – INTERSECT SNAP



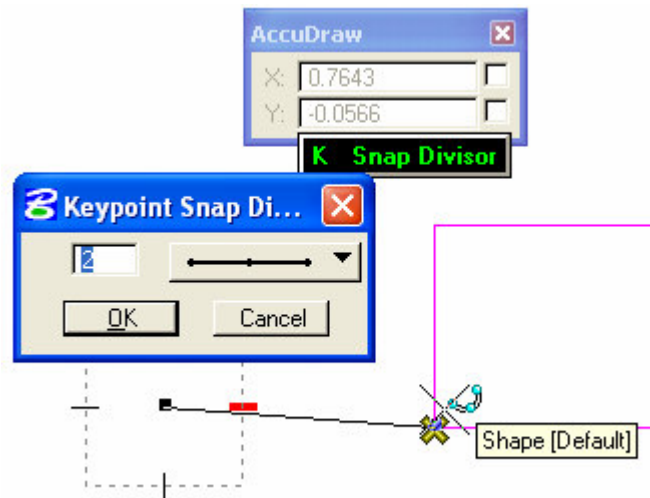
N – NEAREST SNAP



C – CENTER SNAP



K – KEYPOINT SNAP – not only changes the Snap mode to Keypoint but opens the Keypoint Divisor menu.

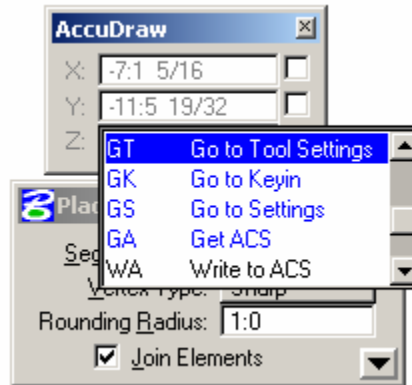


Hint: To quickly close the Keypoint Snap divisor box – hit the **Enter** or **Return** key on the keyboard.

GO TO TOOL SETTINGS



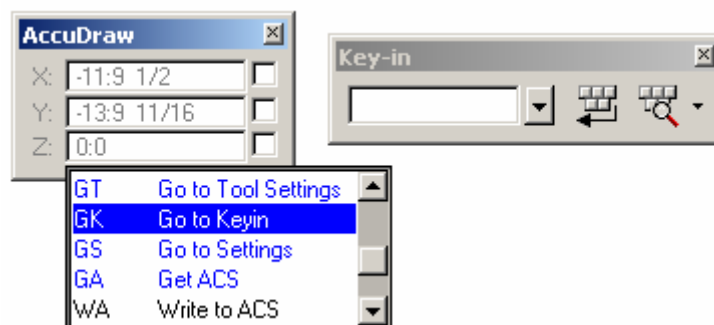
The “GT” will move your focus from AccuDraw to the Tool settings dialog box. Of course as explained earlier the ESC key will move you from AccuDraw to the Tool Settings dialog box.



GO TO KEY-IN

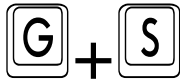


The “GK” will either move you focus to the Key-In dialog if it is opened or it will open the Key-in dialog box. If the Key-in dialog box is already opened – again the ESC key twice will move you focus into that window.



ACCUDRAW SETTING

To Open the AccuDraw Settings dialog box:



- Use the **GS** keys to open the AccuDraw Setting dialog box.
- You can also get to the **Settings -> AccuDraw** pulldown menu.

Key-in: ACCUDRAW DIALOG SETTINGS

OPERATION

AUTO LOAD

The **auto load** starts AccuDraw each time MicroStation V8 is opened.

FLOATING ORIGIN

The floating origin allows the origin to move to the last point placed.

CONTEXT SENSITIVY

The context sensitivity allows MicroStation to make some decisions about the rotations, setting the origin, locking values, or setting the coordinate system type.

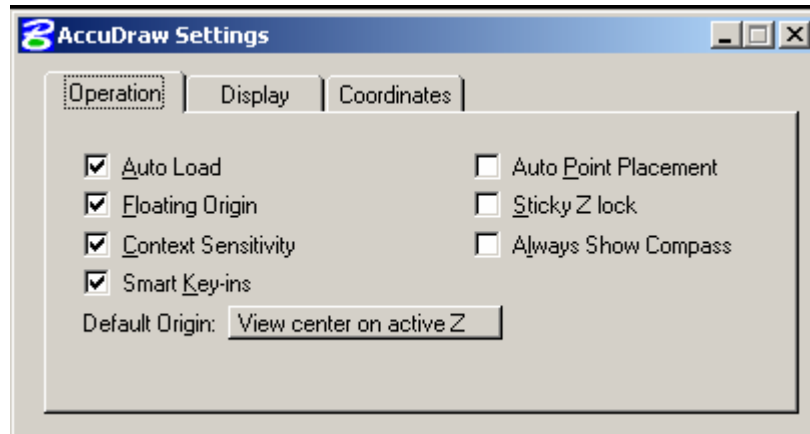
For example: If you were current setup using the Distance and Angle coordinate system; then you select the place block command. Notice that coordinate system has been toggled to XY.

SMART KEY-INS

Smart Key-ins tracks the location of the cursor to decide if the key-in is negative or positive.

AUTO POINT PLACEMENT

The Auto Point Placement allows the user to constrain and lock both parameters and atomically place point with an ENTER from the keyboard. This eliminates hitting the data point on the cursor.



STICKY Z LOCK

When the Sticky Z lock is on it locks the Z axis.

ALWAYS SHOW COMPASS

When the Always Show Compass is on, the compass will always appear on your file at the last DATA point.

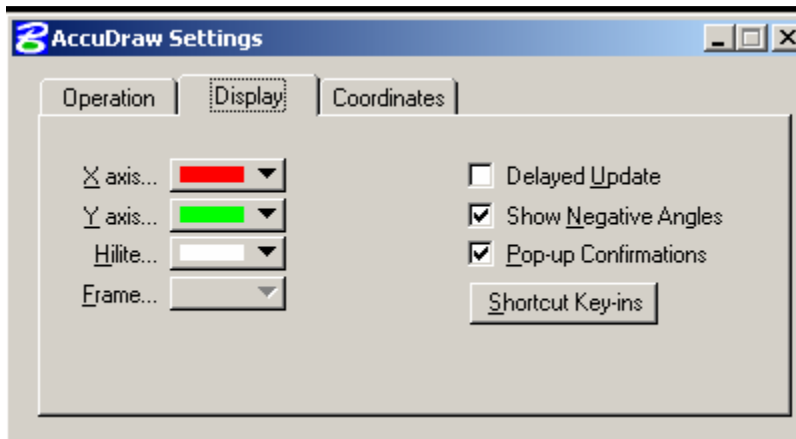
DEFAULT ORIGIN

When a tool starts AccuDraw and there is no origin currently defined, then this setting specifies the default location of the AccuDraw drawing plane origin. Options are:



- **View Center on active Z** — Sets AccuDraw's origin to the center of the view, at the Active Z depth of the view.
- **Global origin** — Sets AccuDraw's origin to the Global Origin of the file.
- **Global origin on active Z** — Sets AccuDraw's origin to the Global Origin (X,Y) at the Active Z depth of the view.

DISPLAY

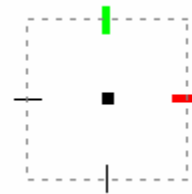


X AXIS

Sets the color for the positive X axis indicator on the AccuDraw compass.

Y AXIS

Sets the color for the positive Y axis indicator on the AccuDraw compass.



HILITE

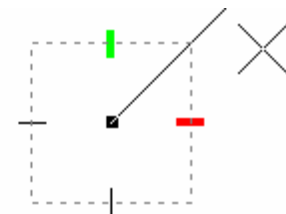
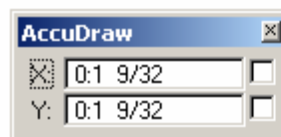
Sets the color for the negative X and Y axis indicators on the AccuDraw compass.

FRAME

Sets the color for the AccuDraw compass frame.

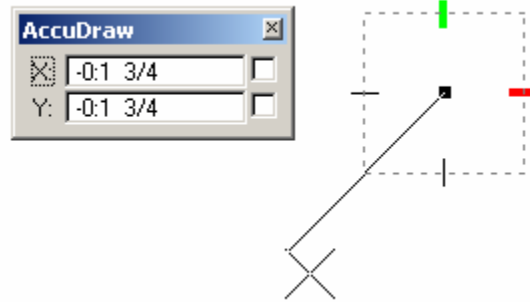
DELAYED UPDATE

With the Delayed Update off (default), coordinates are updated in the AccuDraw window continuously, as you move the screen pointer. With the Delayed Update on, X/Y coordinates are updated in the AccuDraw window when the screen pointer stops.



SHOW NEGATIVE ANGLES

The Show Negative Angles toggle is on (default), AccuDraw displays negative angles (that is, +/-180°). If off, AccuDraw displays angles as 0° to 360°.



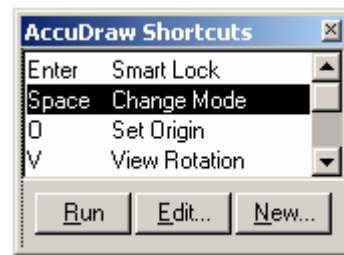
POP-UP CONFIRMATION

AccuDraw displays shortcut popups.

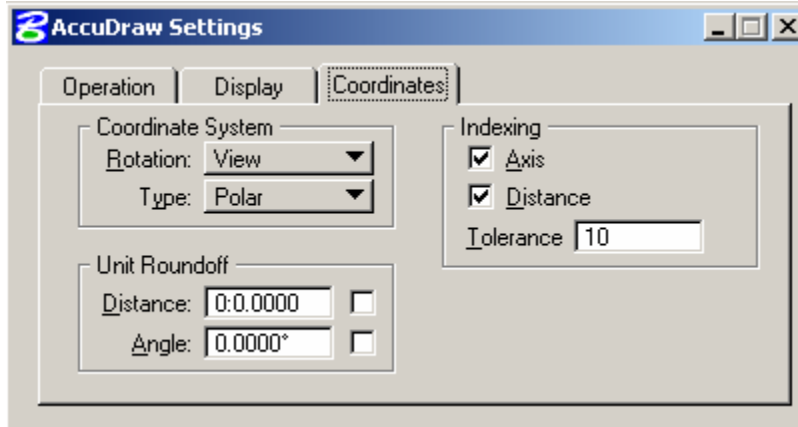


SHORTCUT KEY-INS

Opens the AccuDraw Shortcuts window that lists AccuDraw shortcut keys.

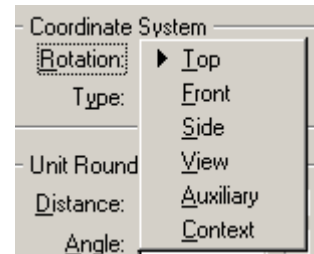


COORDINATES



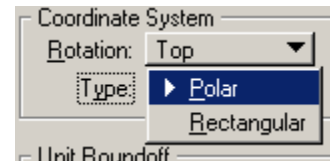
ROTATION

Sets the rotation of the drawing plane axes, via an option menu. While the AccuDraw window has the focus, pressing the “T” – Top, “F” – Front, “S” – Side and “V” – View. Auxiliary is for the ASC and Context is use the “R+Q” key-in.



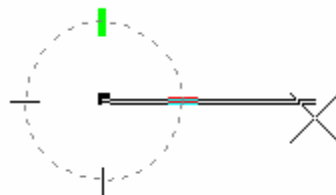
TYPE

The Type is the same as using the SPACE BAR to toggle between the Polar and Rectangle coordinate system.



AXIS

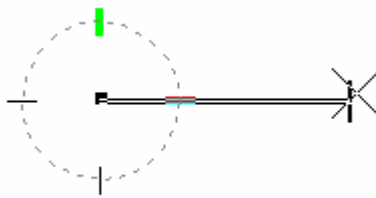
The Indexing Axis is on by default and can be temporarily turn off with “L” key-in. If you turn the Axis toggle off – AccuDraw will lock onto the either axis. The Tolerance setting effects how close to the Axis your cursor needs to be to lock onto the Axis.



Example of Axis Indexing ON.

DISTANCE

The Indexing Distance toggle is on by default. This setting remember the last distance used by AccuDraw and will index you point when you are close to the same distance. You will see the perpendicular line when the Distance Indexing is available. The Tolerance setting sets the distance for the indexing.



Example of Distance Indexing ON

TOLERANCE

The Tolerance setting set the distance in screen pixels in which Axis and Distance use to index AccuDraw. The setting is set from 1 to 99.

QUIT

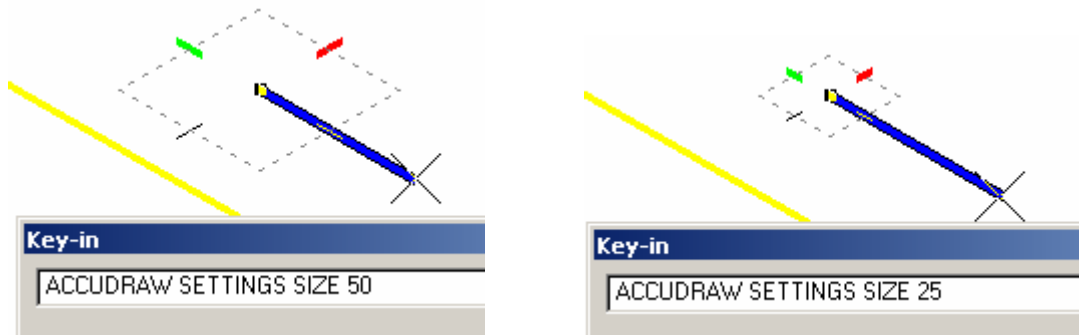
The “Q” key-in will exit or quit AccuDraw.



ACCUDRAW KEY-INS

You can change the size of AccuDraw's compass

keyin: ACCUDRAW SETTINGS SIZE number



If you want to set shortcuts back to the defaults:

keyin: ACCUDRAW SHORTCUTS DEFAULT

If you edited the AccuDraw shortcut key-in file outside of MicroStation, you will need to reread the shortcuts file if MicroStation is already opened.

keyin: ACCUDRAW SHORTCUTS READFILE