



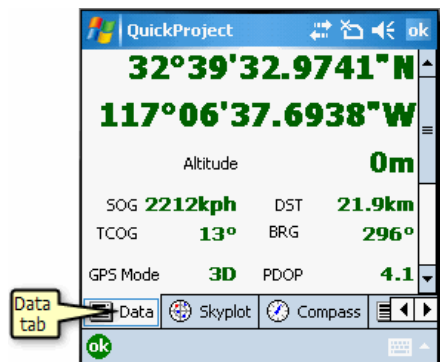
ArcPad Help



The GPS Position window	98
Opening the GPS Position Window	104
Closing the GPS Position Window	105
Steps to select the position coordinate system	106
Steps to select the position measure of quality	107
Navigating with your GPS	
Overview of navigating with your GPS	108
Selecting a navigation destination using the Go To tool	109

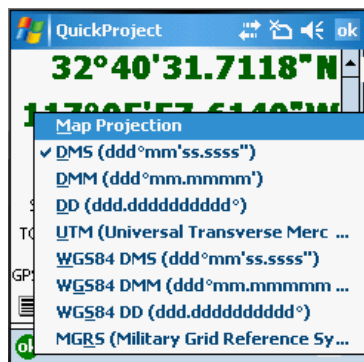
The GPS Position window

The GPS Position window displays a rich variety of information about the GPS satellites, position coordinates, and navigational information. The information is spread across four tabs: Data, Skyplot, Compass, and Quality.



Some of the display fields have context or tap menus; if you tap the field, a menu list will be displayed with alternative information or data formats to be displayed in the associated field.

In the following example, the position coordinate display field has been tapped, using the cursor or stylus, to display the menu of coordinate systems. The current selection in the tap menu is indicated by a check mark to the left of the selection, for example, DMS in the screen capture below.



Position Coordinates tap and hold menu

The GPS Position window displays the following information:

GPS Mode

The GPS Mode displays the type of position being calculated by the GPS receiver. There are three groups of GPS modes that can be displayed: NOFIX, 2D/3D, and differential modes.

NOFIX

NOFIX indicates that ArcPad is not receiving a position from the GPS receiver. No position coordinate will be displayed if the initial GPS Mode is NOFIX. Also, the 2D/3D or differential modes will not be displayed during the NOFIX mode.

2D/3D

2D indicates that only three satellites are available and are being used to calculate the x,y position coordinates. 3D indicates that at least four satellites are available and are being used to calculate the x, y, and z (elevation) position coordinates.

Differential

DGPS indicates that real-time differential correction is being used to calculate the x, y, and z position coordinates.

SBAS indicates that a real-time differential correction from a Satellite Based Augmentation System (SBAS) is being used to calculate the x, y, and z position coordinates. The Wide Area Augmentation System in the United States is an example of an SBAS real-time differential source.

RTK fix indicates that a real-time kinematic (RTK) fixed solution is being used to calculate the x, y, and z position coordinates.

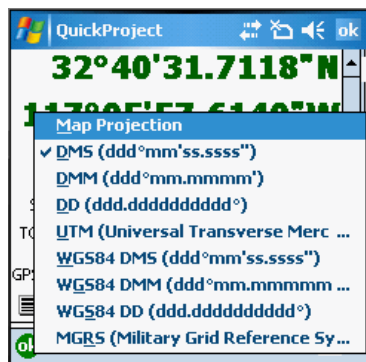
RTK fit indicates that a real-time kinematic (RTK) float solution is being used to calculate the x, y, and z position coordinates.

PPS indicates that a Precise Positioning Service is being used.

Multiple GPS modes can be displayed simultaneously; for example, the 2D or 3D mode can be displayed simultaneously with the differential DGPS or PPS modes.

Position Coordinates

Position Coordinates is a tap and hold menu field; tapping and holding on the coordinates displays the following menu list of alternate coordinate systems, or projections, to be used for displaying the current GPS position:



Position Coordinates tap and hold menu

Map Projection: the projection of the current map, which may be in latitude-longitude or UTM—or any other projection supported by ArcPad.

DMS: latitude-longitude in degrees, minutes, and decimal seconds (ddd°mm'ss.ss").

DMM: latitude-longitude in degrees and decimal minutes (ddd°mm.mmmm').

DD: latitude-longitude in decimal degrees (ddd.ddddddddd°).

UTM: the current UTM (Universal Transverse Mercator) coordinates and zone.

WGS84 DMS: latitude-longitude in degrees, minutes, and decimal seconds (ddd°mm'ss.ss"), using the WGS84 datum.

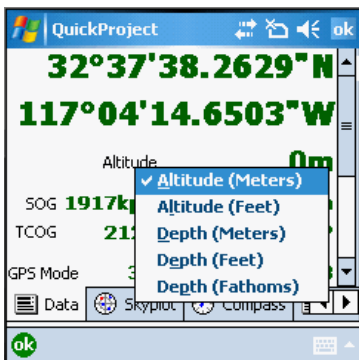
WGS84 DMM: latitude-longitude in degrees and decimal minutes (ddd°mm.mmmm'), using the WGS84 datum.

WGS84 DD: latitude-longitude in decimal degrees (ddd.dddddddd°), using the WGS84 datum.

MGRS: The Military Grid Reference System coordinate.

Elevation

Elevation is a tap menu field. Tapping on the elevation displays the following menu list of altitude or depth units to show in the elevation field, as shown below



Elevation tap and hold menu

Altitude (Meters)

Altitude (Feet)

Depth (Meters)

Depth (Feet)

The depth information is obtained from the standard NMEA message \$SDDPT which provides the depth below the transducer and the offset of the transducer to the water line. This NMEA message is typically output by marine GPS devices such as depth sounders.

Navigation Information

The Navigation Information displays the following information:

SOG: Speed Over Ground, as calculated by the GPS. SOG is the actual speed the GPS receiver is moving over the ground.

COG: Course Over Ground, as calculated by the GPS. COG is the direction the GPS receiver is moving and corresponds to the direction of the black Compass arrow.

DST: The distance from the current GPS position to the selected destination. The DST is calculated by ArcPad.

BRG: The bearing from the current GPS position to the selected destination. The BRG corresponds to the red destination direction on the Compass. The BRG is calculated by ArcPad.

COG is also a tap and hold menu field that provides the option of displaying the COG in one of the following formats:

TCOG: True North Course Over Ground

MCOG: Magnetic North Course Over Ground

Position Measure of Quality

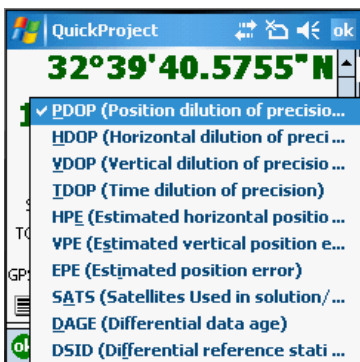
Position Measure of Quality is a tap menu field. Tapping on the Position Measure of Quality displays the following menu list of information to be displayed in the field:

PDOP: Position Dilution of Precision.

DOP: Horizontal Dilution of Precision.

VDOP: Vertical Dilution of Precision.

TDOP: Time Dilution of Precision.



Position Measure of Quality tap and hold menu

HPE: Estimated Horizontal Position Error.

VPE: Estimated Vertical Position Error.

EPE: Estimated Position Error.

SATS: Satellites used in solution. The number of satellites used by the GPS receiver to calculate the GPS position.

DAGE: Differential data age. The age, in seconds, of the differential signal and correction used by the GPS receiver to differentially correct the GPS position.

DSID: Differential reference station ID. The ID of the differential reference station used by the GPS receiver.

Satellite Skyplot and Signal Chart

The Satellite Skyplot and signal chart are shown on their own tab. The Satellite Skyplot shows the almanac of which satellites should be visible or available to the receiver. Each satellite is uniquely colored and the PRN (Pseudo Random Noise) number and position of each satellite is displayed.

Satellite use is distinguished by:

- A black outline for satellites in the skyplot, and an asterisk overlaid on the bars (in the bar chart) for satellites available and used for calculating the position.

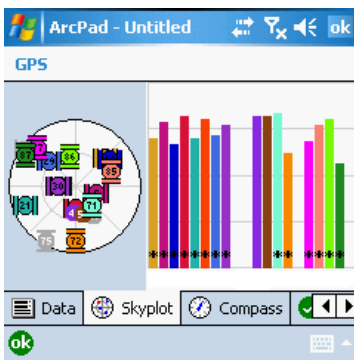
- Satellites available but not used are simply colored.
- Grey satellites are unavailable for calculating the position.

Satellite type is distinguished by:

- GPS satellites are shown as in earlier versions of ArcPad (that is, wings on the satellite icon are vertical). GPS PRN numbers range between 1 to 32.
- GLONASS satellites are shown with the wings on the satellite icon in a horizontal direction. GLONASS PRN numbers range between 65 and 96.
- SBAS satellites are shown with no wings. SBAS PRN numbers range between 33 and 64.

The Satellite Skyplot view shows a bird's-eye view of the position of each satellite according to the satellite almanac. The outer circle represents the horizon (north is up); the inner circle represents 45° above the horizon; and the center point represents what is directly overhead.

The Signal Chart shows a bar chart of the PRN numbers and relative signal strengths of the satellites in the almanac. An asterisk overlaid on a bar indicates that the satellite is being used to calculate the position.

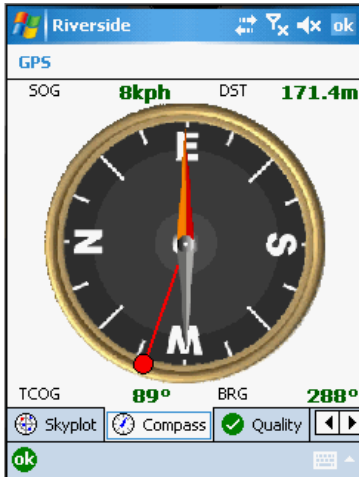


Compass

The compass is displayed on its own tab in the GPS position window along with important navigational information.

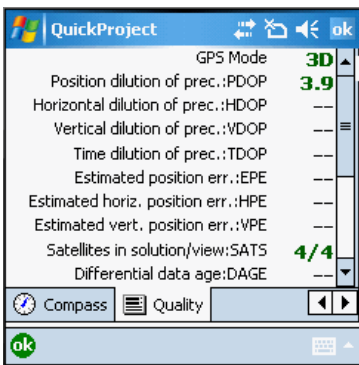
The Compass shows the GPS direction with a black arrow and the direction to the selected destination in red. The GPS direction corresponds to the COG (Course Over Ground) direction, and the direction to the destination corresponds to the BRG (bearing).

Bearing: Speed over ground (SOG), True North Course over ground (TCOG), distance (DST), and bearing (BRG) are also displayed on the Compass tab.



Quality

All of the quality parameters that you can choose to display on the data tab (in place of the default PDOP) are listed on the quality tab.



Debug

Shows the GPS data being received from GPS.



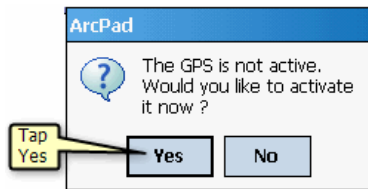
Opening the GPS Position Window

Steps:

1. Tap the GPS Position Window tool on the GPS Menu, to open the full screen GPS Position Window.



A message box will be displayed if the GPS is not active.



2. Tap Yes to activate the GPS and open the GPS Position Window.

Closing the GPS Position Window

Steps:

1. Tap OK at the bottom of the dialog or on the taskbar at the top of the screen

