Note: The PDF objects referenced below are from a PDF file named 'Simple Dimension.pdf'

Measure Objects

The actual interactive feature of a Measure object is a "Line" type annotation with additional properties applied to it. The in depth explanation of these can be found within the PDF reference



Line Annotations

A *line annotation (PDF 1.3)* displays a single straight line on the page. When opened, it displays a pop-up window containing the text of the associated note. Table 8.26 shows the annotation dictionary entries specific to this type of annotation.

		TABLE 8.26 /	Additional entries specific to a line annotation
KEY	TYPE	VALUE	

One of the additional properties will be a /Measure object with a reference to the object. For instance

11 0 obj<</subj(HSS4X4X1/4)/Type/Annot/P 5 0 R/F 4/C[1 1 0]/CreationDate(D:20240203173713-05'00')/T(nickc)/Subtype/Line/DS (font: Helvetica 12pt; text-align:center; line-height:13.8pt; color:#0000FF)/BS<</wd>
(b 5/S/S/Type/Border>>/IC[1 1 0]/LL 0. 1566228/LLE 2/Cap true/MeasurementTypes 130/SlopeType 0/PitchRun 12/IT/LineDimension/BM/Multiply/Measure 21 0 R/BSIColumnData[()()(336.87)(HSS4X4X1/4)(12.21)(1)()()()()()()()()(0.00)(No)(0.00)(0)(No)(Error)]/M(D:20240203173720-05'00')/L[138.8228 555.1846 511.2854 555.1846]/AP<</td>
10 R/BSIColumnData[()()(336.87)(HSS4X4X1/4)(12.21)(1)()()()()()()()()()(0.00)(No)(0.00)(0)(No)(Error)]/M(D:20240203173720-05'00')/L[138.8228 555.1846 511.2854 555.1846]/AP<</td>
10 R/BSICOlumnData[()()(336.87)(HSS4X4X1/4)(12.21)(1)()()()()()()()()()()()(0.00)(No)(0.00)(0)(No)(Error)]/M(D:20240203173720-05'00')/L[138.8228 555.1846]/AP
10 R/BSICOlumnData[()()(336.87)(HSS4X4X1/4)(12.21)(1)()()()()()()()()()()()(0.00)(No)(0.00)(0)(No)(Error)]/M(D:20240203173720-05'00')/L[138.8228 555.1846]/AP
10 R/BSICOlumnData[()()(336.87)(HSS4X4X1/4)(12.21)(1)()()()()()()()()()()()(0.00)(No)(0.00)(0)(No)(Error)]/M(D:20240203173720-05'00')/L[138.8228 555.1846]/AP
10 R/BSICOlumnData[()(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(Error)]/M(D:20240203173720-05'00')/L[138.228 555.1846]/AP
10 R/BSICOlumnData[()(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(No)(0.00)(N

Measure object reference

This measure object will define all the properties of the Measure. A complete explanation of these properties is available in the pdfreference.

CHAPTER 8 Interactive Features

8.8 Measurement Properties

PDF documents, such as those created by CAD software, may contain graphics that are intended to represent real-world objects. Users of such documents often require information about the scale and units of measurement of the corresponding real-world objects and their relationship to units in PDF user space.

 $21\ 0\ obj<</Type/Measure/Subtype/RL/R(0.1875\ in = 1\ ft'\ in")/X[<</Type/NumberFormat/U(')/C\ 0.07407407/F/F/D\ 1/FD\ true/SS()>>]/D[<</Type/NumberFormat/U(')/C\ 1/F/F/D\ 1/FD\ true/PS()/SS()>>]/A[<</Type/NumberFormat/U(sf)/C\ 1/D\ 1/FD\ true/PS()/SS()>>]/T[<</Type/NumberFormat/U(\260)/C\ 1/D\ 1/FD\ true/PS()/SS()>>]/V[<</Type/NumberFormat/U(\cu ft)/C\ 1/D\ 1/FD\ true/SS()>>]/TargetUnitConversion\ 0.001157407>> endobj$

Same obj ID as included in the line object In order for a Measure object to work correctly, it needs to be within the Bounding box (BBox) of a /VP or viewport object. A list of all viewports for a given page are provided in the pages library.

5 0 obj></Type/Page/Parent 4 0 R/MediaBox[0 0 612 792]/Annots 13 0 R/VP 18 0 R>>

The Lines Page is defined as an xref key /P

The page will include a /VP which is a list of all viewports on a page

18 0 obj[19 0 R]

a list of all /VP objects contained within the page in this case, a single object 19 0

19 0 obj<</Type/Viewport/BBox[0 0 612 792]/Measure 20 0 R/NM(UIGNDBUHQHFHDCJV)>>

Another Measure object which will define the /VPs units and scale

See PDF reference to understand the units etc included here

Which /VP a line annotation with a /Measure Dictionary is a part of is determined by which /VPs BBox contains the points stored in the lines /L array of points (more below)

A viewport (*PDF 1.6*) is a rectangular region of a page. The optional **VP** entry in a page dictionary (see Table 3.27) specifies an array of viewport dictionaries, whose entries are shown in Table 8.109. Viewports allow different measurement scales (specified by the **Measure** entry) to be used in different areas of a page, if necessary.

The dictionaries in the **VP** array are in drawing order. Since viewports might overlap, to determine the viewport to use for any point on a page, the dictionaries in the array are examined, starting with the last one and iterating in reverse, and the first one whose **BBox** entry contains the point is chosen.