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HOME (/INDEX.PHP) **CURRENT ISSUE (/INDEX.PHP/CURRENT-ISSUE)** **PAST ARTICLES (/INDEX.PHP/PAST-ARTICLES)** **TRAINING (/INDEX.PHP/TRAINING)**

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How to Interpret Angles in Calypso

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In using Calypso you might have run across this scenario. I measure a line but now must understand what the angles A1 and A2 mean. How do I explain to someone which direction the angle is pointing. I could put my hands together forming an angle but is the direction more positive or negative?

There are two things you will need to be aware of when explaining the A1 and A2 angle output. These are the space axis and the plane the angle is in. If you look at the A1 and A2 output you will see the plane the result is reporting. Now this is not a fixed plane but is subject to the measurement of the feature. Below you will see some examples. These follow a certain pattern that will help you in any axis.

First notice the Space Axis, the direction the line is pointing.

Secondly, look at the plane the result is in (these examples are simple angles and not compound angles).

Let's look at the first example

Space Axis: +X - the line is pointing in the +X axis

The first table shows a perfect '0' angle

The second table shows Y/X = 20 degrees

The first letter of the plane combination is the start "looking" to the second letter of the plane combination, so in this example from Y to X. The 20 degree angle value shows (+)20 so the line moves CCW from X toward Y 20 degrees.

The third table shows Y/X = -20

The first letter of the plane combination is the start "looking" to the second letter of the plane combination, so in this example from Y to X. The 20 degree angle value shows -20 so the line moves CW from X away from Y -20 degrees.

Line at 90.00 degrees in +X   Space Axis +X

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A1	Y/X	0.000	
A2	Z/X	0.000	

Line at 20.00 degrees in +X

A1	Y/X Viewing from third axis	20.000	
A2	Z/X	0.000	

Line at -20.00 degrees in +X

A1	Y/X Viewing from third axis	-20.00	
A2	Z/X	0.000	

Positive move CCW

Negative moves CW

Line at 90.00 degrees in -X   -X Space Axis

A1	Z/-X	0.000	
A2	Y/-X	0.000	

Line at 20.00 degrees in -X

A1	Z/-X	0.000	
A2	Y/-X	20.000	
	Viewing from third axis		

Line at 20.00 degrees in –X

A1	Z/-X	0.000	
A2	Y/-X	-20.000	
	Viewing from third axis		

Positive moves CW

Negative moves CCW

Line at 90.00 degrees in Y   **+Y Space Axis**

A1	Z/Y	0.000	
A2	X/Y	0.000	

Line at -20.00 degrees in Y

A1	Z/Y	0.000	
A2	X/Y	-20.00	
	Viewing from third axis		

Line at 20.00 degrees in Y

A1	Z/Y	0.000	
A2	X/Y	20.00	
	Viewing from third axis		

Positive moves CW

Negative moves CCW

Line at 90.00 degrees in –Y   **–Y Space Axis**

A1	X/-Y	0.00	
	Viewing from third axis		
A2	Z/-Y	0.00	

Line at 20.00 degrees in –Y

A1	X/-Y	20.00	
	Viewing from third axis		
A2	Z/-Y	0.00	

Line at -20.00 degrees in –Y

A1	X/-Y	-20.00	
	Viewing from third axis		
A2	Z/-Y	0.00	

Positive moves CCW
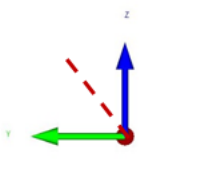
Negative move CW

Line at 90.00 degrees in +Z   **+Z Space Axis**
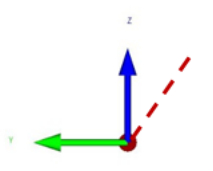
A1	X/Z	0.000	
A2	Y/Z	0.000	

Line at 20.00 degrees in +Z

A1	X/Z	0.000	
A2	Y/Z Viewing from third axis	20.000	

Line at -20.00 degrees in +Z

A1	X/Z	0.000	
A2	Y/Z Viewing from third axis	-20.000	

Positive moves CCW

Negative move CW

Summary

When the direction of the line (space axis) is in the positive quadrant:

Positive moves CW

Negative moves CCW

When the direction of the line (space axis) is in the negative quadrant:

Positive moves CCW

Negative move CW

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