

DATA TRANSFER COMMANDS

OUTP ? i

The OUTP? i command **reads the value of X, Y, R or θ** . The parameter i selects X (i=1), Y (i=2), R (i=3) or θ (i=4). Values are returned as ASCII floating point numbers with units of Volts or degrees. For example, the response might be "-1.01026". This command is a query only command.

OUTR ? i

The OUTR? i command **reads the value of the CH1 or CH2 display**. The parameter i selects the display (i=1 or 2). Values are returned as ASCII floating point numbers with units of the display. For example, the response might be "-1.01026". This command is a query only command.

SNAP ? i,j {,k,l,m,n}

The SNAP? command records the values of either 2, 3, 4, 5 or 6 parameters at a single instant. For example, SNAP? is a way to query values of X and Y (or R and θ) which are taken at the same time. This is important when the time constant is very short. Using the OUTP? or OUTR? commands will result in time delays, which may be greater than the time constant, between reading X and Y (or R and θ).

The SNAP? command requires at least two parameters and at most six parameters. The parameters i, j, k, l, m, n select the parameters below.

<u>i,j,k,l,m,n</u>	<u>parameter</u>
1	X
2	Y
3	R
4	θ
5	Aux In 1
6	Aux In 2
7	Aux In 3
8	Aux In 4
9	Reference Frequency
10	CH1 display
11	CH2 display

The requested values are returned in a single string with the values separated by commas and in the order in which they were requested. For example, the SNAP?1,2,9,5 will return the values of X, Y, Freq and Aux In 1. These values will be returned in a single string such as "0.951359,0.0253297,1000.00,1.234".

The first value is X, the second is Y, the third is f, and the fourth is Aux In 1.

The values of X and Y are recorded at a single instant. The values of R and θ are also recorded at a single instant. Thus reading X,Y OR R, θ yields a coherent snapshot of the output signal. If X,Y,R and θ are all read, then the values of X,Y are recorded approximately 10 μ s apart from R, θ . Thus, the values of X and Y may not yield the exact values of R and θ from a single SNAP? query.

The values of the Aux Inputs may have an uncertainty of up to 32 μ s. The frequency is computed only every other period or 40 ms, whichever is longer.