

FORMAT for Reading a Summary File (.sum) in InflowWind

used with Bladed-Style FF binary files

T/F indicates a LOGICAL input value

NUM indicates a numeric (REAL, floating-point) input value

The file name must end in “.sum” and have the same root name as the binary FF file (which should have a “.wnd” extension). The words in **bold red font** are required unless otherwise specified (AeroDyn looks for those key words), and they must appear in the order listed below. There may be other lines mixed in the file, with the exception that the 3 lines following UBAR *must* be the TI parameters.

The file should look like the text contained in the box below:

T/F	CLOCKWISE
NUM	HUB HEIGHT
NUM	UBAR (if the character “=” exists, it must precede the numeric entry; the lines with TI must be the next 3 lines)
NUM	TI(u) (if the characters “=” or “%” exists, the numeric entry must follow the “=” and precede the “%”; e.g., [TI(u) = 12.42 %])
NUM	TI(v) (if the characters “=” or “%” exists, the numeric entry must follow the “=” and precede the “%”; e.g., [= 12.42 %])
NUM	TI(w) (if the characters “=” or “%” exists, the numeric entry must follow the “=” and precede the “%”; e.g., [= 12.42 %])
NUM	HEIGHT OFFSET (optional; if the character “=” exists, it must precede the numeric entry)
	PERIODIC (optional; if this string exists, the file will be interpolated as if it is periodic in time)

The Clockwise flag is used to determine which way the lateral dimension of the grids was written to the binary file, i.e., does it start on the right or the left?

UBar and the TI values are used for normalizing the binary data (the TI need not be the actual turbulence intensities; UBar must be within 0.1 m/s of the mean FF wind speed contained in the binary file)

Height Offset—calculated by $\text{HeightOffset} = \text{HH} - \text{GridBase} - \text{FFZHWid}$ —is used to allow grids that are not centered vertically on the turbine hub-height.

Periodic is used to allow the wind file to be periodic in time when it is interpolated in InflowWind. This option should be used only if the wind file contains a full period. The first grid in periodic files is located at X=0 m; the first grid in non-periodic files is located at X=GridWidth/2 m.