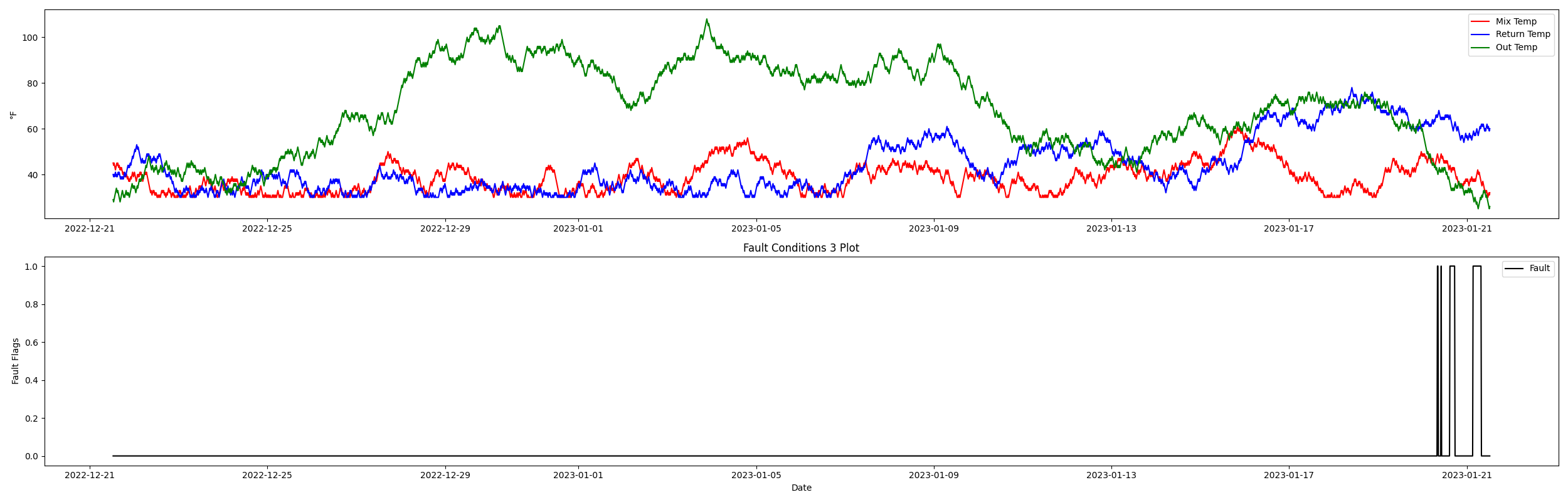
Fault Condition Three Report

Fault condition two and three of ASHRAE Guideline 36 is related to flagging mixing air temperatures of the AHU that are out of acceptable ranges. Fault condition 2 flags mixing air temperatures that are too low and fault condition 3 flags mixing temperatures that are too high when in comparision to return and outside air data. The mixing air temperatures in theory should always be in between the return and outside air temperatures ranges. Fault condition three equation as defined by ASHRAE:



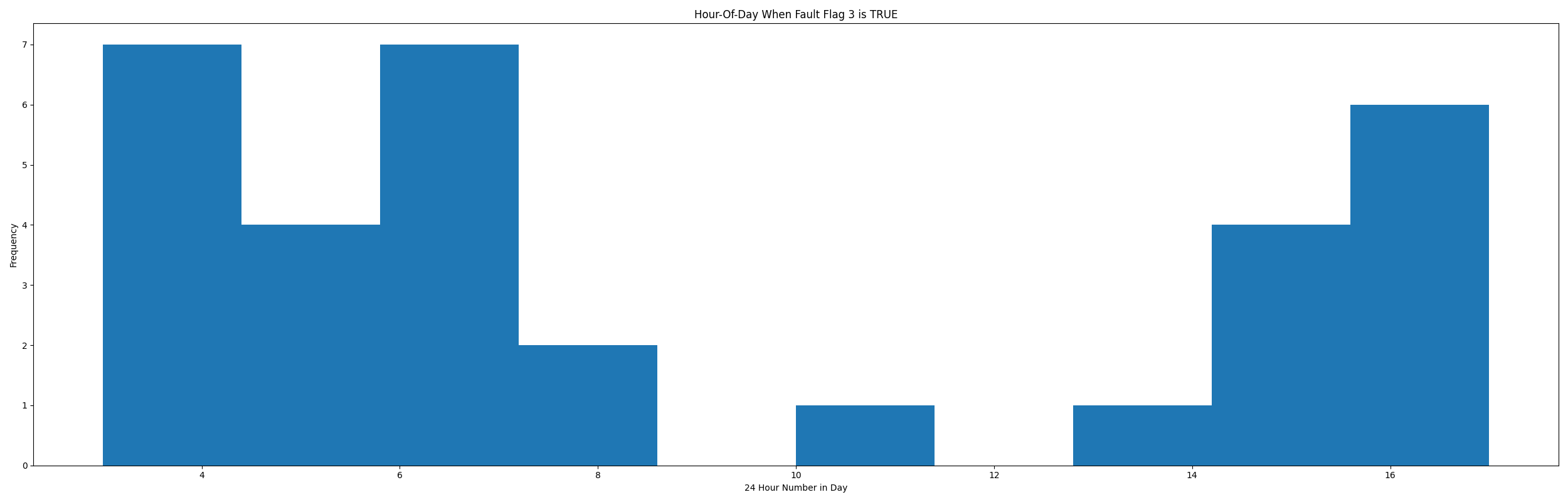
## Dataset Plot



## Dataset Statistics

* Total time in days calculated in dataset: 30.99
* Total time in hours calculated in dataset: 743.75
* Total time in hours for when fault flag is True: 8.0
* Percent of time in the dataset when the fault flag is True: 1.08%
* Percent of time in the dataset when the fault flag is False: 98.92%
* Calculated motor runtime in hours based off of VFD signal > zero: 278.0

## Time-of-day Histogram Plots



* When fault condition 3 is True the average mix air temp is 41.06°F, outside air temp is 31.25°F, and return air temp is 60.5°F. This could possibly help with pin pointing AHU operating conditions for when this fault is True.

# Summary Statistics filtered for when the AHU is running

### Mix Temp

* count 1112.000000  
  mean 36.845324  
  std 5.061049  
  min 30.000000  
  25% 32.000000  
  50% 37.000000  
  75% 41.000000  
  max 50.000000  
  Name: mat, dtype: float64

### Return Temp

* count 1112.000000  
  mean 46.693345  
  std 9.713373  
  min 30.000000  
  25% 38.000000  
  50% 48.000000  
  75% 54.000000  
  max 68.000000  
  Name: rat, dtype: float64

### Outside Temp

* count 1112.000000  
  mean 56.800360  
  std 19.832414  
  min 25.000000  
  25% 41.000000  
  50% 50.000000  
  75% 79.000000  
  max 97.000000  
  Name: oat, dtype: float64

## Suggestions based on data analysis

* The percent True of time in fault condition 2 or 3 is high indicating the AHU temperature sensors are out of calibration

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