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com.kauailabs.navx.ftc

## Class navXPerformanceMonitor

* java.lang.Object
  + com.kauailabs.navx.ftc.navXPerformanceMonitor
* All Implemented Interfaces: [IDataArrivalSubscriber](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html)  
    
  public class navXPerformanceMonitor  
  extends java.lang.Object  
  implements [IDataArrivalSubscriber](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html)  
  The navXPerformanceMonitor class is designed to provide performance data to help tune the navx\_ftc library's AHRS class to retrieve navX-Model device data using tuning parameters appropriate for a particular FTC robotic controller configuration. For an example of using the navXPerformanceMonitor class, see the  [navX Performance Tuning Opmode](https://github.com/kauailabs/navxmxp/blob/master/android/OpModes/navXPerformanceTuningOp.java)

### Constructor SummaryConstructors

|  |
| --- |
| * + Constructor and Description |
| * + [navXPerformanceMonitor](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#navXPerformanceMonitor-com.kauailabs.navx.ftc.AHRS-)([AHRS](http://docs.google.com/com/kauailabs/navx/ftc/AHRS.html) navx\_device) Constructor for the navXPerformanceMonitor class. |

### Method SummaryAll Methods Instance Methods Concrete Methods

|  |  |
| --- | --- |
| * + Modifier and Type | * + Method and Description |
| * + int | * + [getDeliveredRateHz](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getDeliveredRateHz--)() The delivered rate is the rate at which samples are delivered to the Android-based FTC robotics control application. |
| * + int | * + [getDimTransferRateHz](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getDimTransferRateHz--)() The rate at which the Core Device Interface Module (DIM) is currently delivering data samples to the navx\_ftc library IO thread. |
| * + long | * + [getLastSensorTimestampDeltaMS](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getLastSensorTimestampDeltaMS--)() The last sensor timestamp delta indicates the period of time between reception of the last two samples from the navX-Model device, for those data samples which are timestamped with a sensor timestamp. |
| * + long | * + [getLastSystemTimestampDeltaMS](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getLastSystemTimestampDeltaMS--)() The last system timestamp delta indicates the period of time between reception of the last two samples from the navX-Model device, for those data samples which do not provide a corresponding sensor timestamp and are instead timestamped using the Android OS system timestamp. |
| * + int | * + [getNumEstimatedMissedUntimestampedSamples](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getNumEstimatedMissedUntimestampedSamples--)() The number of samples which were expected to be received from the navX-Model device which are believed to have not arrived based upon the Android OS system timestamp. |
| * + int | * + [getNumMissedSensorTimestampedSamples](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getNumMissedSensorTimestampedSamples--)() The number of samples which were expected to be received from the navX-Model device which never arrived, since the last time the navXPerformanceMonitor's statistics were reset. |
| * + int | * + [getSensorRateHz](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#getSensorRateHz--)() The sensor tate is the rate at which the navX-Model device sensor is currently configured to deliver sample. |
| * + void | * + [reset](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#reset--)() Resets the peformance monitoring statistics. |
| * + void | * + [timestampedDataReceived](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#timestampedDataReceived-long-long-java.lang.Object-)(long curr\_system\_timestamp, long curr\_sensor\_timestamp, java.lang.Object kind) |
| * + void | * + [untimestampedDataReceived](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#untimestampedDataReceived-long-java.lang.Object-)(long curr\_system\_timestamp, java.lang.Object kind) |
| * + void | * + [yawReset](http://docs.google.com/com/kauailabs/navx/ftc/navXPerformanceMonitor.html#yawReset--)() |

### Methods inherited from class java.lang.Objectclone, equals, finalize, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

### Constructor Detail

#### navXPerformanceMonitor public navXPerformanceMonitor([AHRS](http://docs.google.com/com/kauailabs/navx/ftc/AHRS.html) navx\_device) Constructor for the navXPerformanceMonitor class.Parameters: navx\_device - The instance of the navX-Model device to monitor.

### Method Detail

#### reset public void reset() Resets the peformance monitoring statistics.

#### getDeliveredRateHz public int getDeliveredRateHz() The delivered rate is the rate at which samples are delivered to the Android-based FTC robotics control application.Returns: The rate of navX-Model device sample delivery in Hz.

#### getSensorRateHz public int getSensorRateHz() The sensor tate is the rate at which the navX-Model device sensor is currently configured to deliver sample. This rate may be greater than the delivered rate.Returns: The rate at which the navX-Model device is currently configured to generate samples, in Hz.

#### getDimTransferRateHz public int getDimTransferRateHz() The rate at which the Core Device Interface Module (DIM) is currently delivering data samples to the navx\_ftc library IO thread.Returns: The current DIM transfer rate in Hz.

#### getNumMissedSensorTimestampedSamples public int getNumMissedSensorTimestampedSamples() The number of samples which were expected to be received from the navX-Model device which never arrived, since the last time the navXPerformanceMonitor's statistics were reset.Returns: The number of navX-Model device samples not received.

#### getNumEstimatedMissedUntimestampedSamples public int getNumEstimatedMissedUntimestampedSamples() The number of samples which were expected to be received from the navX-Model device which are believed to have not arrived based upon the Android OS system timestamp. Note that this timestamp is not as accurate as the navX-Model device sensor timestamp, and thus the number of missed unstimestamped samples is an estimate, and is not deterministic.Returns: The estimated number of navX-Model device untimestamped samples not received, since the last time the navXPerformanceMonitor's statistics were reset.

#### getLastSensorTimestampDeltaMS public long getLastSensorTimestampDeltaMS() The last sensor timestamp delta indicates the period of time between reception of the last two samples from the navX-Model device, for those data samples which are timestamped with a sensor timestamp.Returns: The last sensor timestamp delta, in milliseconds.

#### getLastSystemTimestampDeltaMS public long getLastSystemTimestampDeltaMS() The last system timestamp delta indicates the period of time between reception of the last two samples from the navX-Model device, for those data samples which do not provide a corresponding sensor timestamp and are instead timestamped using the Android OS system timestamp.Returns: The last system timestamp delta, in milliseconds.

#### untimestampedDataReceived public void untimestampedDataReceived(long curr\_system\_timestamp, java.lang.Object kind)Specified by: [untimestampedDataReceived](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html#untimestampedDataReceived-long-java.lang.Object-) in interface [IDataArrivalSubscriber](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html)

#### timestampedDataReceived public void timestampedDataReceived(long curr\_system\_timestamp, long curr\_sensor\_timestamp, java.lang.Object kind)Specified by: [timestampedDataReceived](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html#timestampedDataReceived-long-long-java.lang.Object-) in interface [IDataArrivalSubscriber](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html)

#### yawReset public void yawReset()Specified by: [yawReset](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html#yawReset--) in interface [IDataArrivalSubscriber](http://docs.google.com/com/kauailabs/navx/ftc/IDataArrivalSubscriber.html)

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