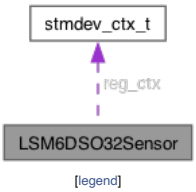
LSM6DSO32Sensor Class Reference

`#include <LSM6DSO32Sensor.h>`

Collaboration diagram for LSM6DSO32Sensor:



[legend]

Public Member Functions

	LSM6DSO32Sensor (TwoWire *i2c, uint8_t **address**=**LSM6DSO32_I2C_ADD_H**)
	LSM6DSO32Sensor (SPIClass *spi, int **cs_pin**, uint32_t **spi_speed**=2000000)
LSM6DSO32StatusTypeDef	**begin** () Configure the sensor in order to be used.
LSM6DSO32StatusTypeDef	**end** () Disable the sensor and relative resources.
LSM6DSO32StatusTypeDef	**ReadID** (uint8_t *Id) Read component ID.
LSM6DSO32StatusTypeDef	**Enable_X** () Enable the LSM6DSO32 accelerometer sensor.
LSM6DSO32StatusTypeDef	**Disable_X** () Disable the LSM6DSO32 accelerometer sensor.
LSM6DSO32StatusTypeDef	**Get_X_Sensitivity** (float *Sensitivity) Get the LSM6DSO32 accelerometer sensor sensitivity.
LSM6DSO32StatusTypeDef	**Get_X_ODR** (float *Odr) Get the LSM6DSO32 accelerometer sensor output data rate.
LSM6DSO32StatusTypeDef	**Set_X_ODR** (float Odr) Set the LSM6DSO32 accelerometer sensor output data rate.
LSM6DSO32StatusTypeDef	**Set_X_ODR_With_Mode** (float Odr, **LSM6DSO32_ACC_Operating_Mode_t** Mode) Set the LSM6DSO32 accelerometer sensor output data rate with operating mode.
LSM6DSO32StatusTypeDef	**Get_X_FS** (int32_t *FullScale) Get the LSM6DSO32 accelerometer sensor full scale.
LSM6DSO32StatusTypeDef	**Set_X_FS** (int32_t FullScale) Set the LSM6DSO32 accelerometer sensor full scale.
LSM6DSO32StatusTypeDef	**Get_X_AxesRaw** (int16_t *Value) Get the LSM6DSO32 accelerometer sensor raw axes.
LSM6DSO32StatusTypeDef	**Get_X_Axes** (int32_t *Acceleration) Get the LSM6DSO32 accelerometer sensor axes.
LSM6DSO32StatusTypeDef	**Enable_G** () Enable the LSM6DSO32 gyroscope sensor.
LSM6DSO32StatusTypeDef	**Disable_G** () Disable the LSM6DSO32 gyroscope sensor.
LSM6DSO32StatusTypeDef	**Get_G_Sensitivity** (float *Sensitivity) Get the LSM6DSO32 gyroscope sensor sensitivity.
LSM6DSO32StatusTypeDef	**Get_G_ODR** (float *Odr) Get the LSM6DSO32 gyroscope sensor output data rate.
LSM6DSO32StatusTypeDef	**Set_G_ODR** (float Odr) Set the LSM6DSO32 gyroscope sensor output data rate.
LSM6DSO32StatusTypeDef	**Set_G_ODR_With_Mode** (float Odr, **LSM6DSO32_GYRO_Operating_Mode_t** Mode) Set the LSM6DSO32 gyroscope sensor output data rate with operating mode.
LSM6DSO32StatusTypeDef	**Get_G_FS** (int32_t *FullScale) Get the LSM6DSO32 gyroscope sensor full scale.
LSM6DSO32StatusTypeDef	**Set_G_FS** (int32_t FullScale) Set the LSM6DSO32 gyroscope sensor full scale.
LSM6DSO32StatusTypeDef	**Get_G_AxesRaw** (int16_t *Value) Get the LSM6DSO32 gyroscope sensor raw axes.
LSM6DSO32StatusTypeDef	**Get_G_Axes** (int32_t *AngularRate) Get the LSM6DSO32 gyroscope sensor axes.

LSM6DSO32StatusTypeDef	**Read_Reg** (uint8_t reg, uint8_t *Data) Get the LSM6DSO32 register value.
LSM6DSO32StatusTypeDef	**Write_Reg** (uint8_t reg, uint8_t Data) Set the LSM6DSO32 register value.
LSM6DSO32StatusTypeDef	**Set_Interrupt_Latch** (uint8_t Status) Set the interrupt latch.
LSM6DSO32StatusTypeDef	**Enable_Free_Fall_Detection** (**LSM6DSO32_SensorIntPin_t** IntPin) Enable free fall detection.
LSM6DSO32StatusTypeDef	**Disable_Free_Fall_Detection** () Disable free fall detection.
LSM6DSO32StatusTypeDef	**Set_Free_Fall_Threshold** (uint8_t Threshold) Set free fall threshold.
LSM6DSO32StatusTypeDef	**Set_Free_Fall_Duration** (uint8_t Duration) Set free fall duration.
LSM6DSO32StatusTypeDef	**Enable_Pedometer** () Enable pedometer.
LSM6DSO32StatusTypeDef	**Disable_Pedometer** () Disable pedometer.
LSM6DSO32StatusTypeDef	**Get_Step_Count** (uint16_t *StepCount) Get step count.
LSM6DSO32StatusTypeDef	**Step_Counter_Reset** () Enable step counter reset.
LSM6DSO32StatusTypeDef	**Enable_Tilt_Detection** (**LSM6DSO32_SensorIntPin_t** IntPin) Enable tilt detection.
LSM6DSO32StatusTypeDef	**Disable_Tilt_Detection** () Disable tilt detection.
LSM6DSO32StatusTypeDef	**Enable_Wake_Up_Detection** (**LSM6DSO32_SensorIntPin_t** IntPin) Enable wake up detection.
LSM6DSO32StatusTypeDef	**Disable_Wake_Up_Detection** () Disable wake up detection.
LSM6DSO32StatusTypeDef	**Set_Wake_Up_Threshold** (uint8_t Threshold) Set wake up threshold.
LSM6DSO32StatusTypeDef	**Set_Wake_Up_Duration** (uint8_t Duration) Set wake up duration.
LSM6DSO32StatusTypeDef	**Enable_Single_Tap_Detection** (**LSM6DSO32_SensorIntPin_t** IntPin) Enable single tap detection.
LSM6DSO32StatusTypeDef	**Disable_Single_Tap_Detection** () Disable single tap detection.
LSM6DSO32StatusTypeDef	**Enable_Double_Tap_Detection** (**LSM6DSO32_SensorIntPin_t** IntPin) Enable double tap detection.
LSM6DSO32StatusTypeDef	**Disable_Double_Tap_Detection** () Disable double tap detection.
LSM6DSO32StatusTypeDef	**Set_Tap_Threshold** (uint8_t Threshold) Set tap threshold.
LSM6DSO32StatusTypeDef	**Set_Tap_Shock_Time** (uint8_t Time) Set tap shock time.
LSM6DSO32StatusTypeDef	**Set_Tap_Quiet_Time** (uint8_t Time) Set tap quiet time.
LSM6DSO32StatusTypeDef	**Set_Tap_Duration_Time** (uint8_t Time) Set tap duration time.
LSM6DSO32StatusTypeDef	**Enable_6D_Orientation** (**LSM6DSO32_SensorIntPin_t** IntPin) Enable 6D orientation detection.
LSM6DSO32StatusTypeDef	**Disable_6D_Orientation** () Disable 6D orientation detection.
LSM6DSO32StatusTypeDef	**Set_6D_Orientation_Threshold** (uint8_t Threshold) Set 6D orientation threshold.
LSM6DSO32StatusTypeDef	**Get_6D_Orientation_XL** (uint8_t *XLow) Get the status of XLow orientation.
LSM6DSO32StatusTypeDef	**Get_6D_Orientation_XH** (uint8_t *XHigh) Get the status of XHigh orientation.

LSM6DSO32StatusTypeDef	**Get_6D_Orientation_YL** (uint8_t *YLow) Get the status of YLow orientation.
LSM6DSO32StatusTypeDef	**Get_6D_Orientation_YH** (uint8_t *YHigh) Get the status of YHigh orientation.
LSM6DSO32StatusTypeDef	**Get_6D_Orientation_ZL** (uint8_t *ZLow) Get the status of ZLow orientation.
LSM6DSO32StatusTypeDef	**Get_6D_Orientation_ZH** (uint8_t *ZHigh) Get the status of ZHigh orientation.
LSM6DSO32StatusTypeDef	**Get_X_DRDY_Status** (uint8_t *Status) Get the LSM6DSO32 ACC data ready bit value.
LSM6DSO32StatusTypeDef	**Get_X_Event_Status** (**LSM6DSO32_Event_Status_t** *Status) Get the status of all hardware events.
LSM6DSO32StatusTypeDef	**Set_X_SelfTest** (uint8_t Status) Set self test.
LSM6DSO32StatusTypeDef	**Get_G_DRDY_Status** (uint8_t *Status) Get the LSM6DSO32 GYRO data ready bit value.
LSM6DSO32StatusTypeDef	**Set_G_SelfTest** (uint8_t Status) Set self test.
LSM6DSO32StatusTypeDef	**Get_FIFO_Num_Samples** (uint16_t *NumSamples) Get the LSM6DSO32 FIFO number of samples.
LSM6DSO32StatusTypeDef	**Get_FIFO_Full_Status** (uint8_t *Status) Get the LSM6DSO32 FIFO full status.
LSM6DSO32StatusTypeDef	**Get_FIFO_Overrun_Status** (uint8_t *Status) Get the LSM6DSO32 FIFO overrun status.
LSM6DSO32StatusTypeDef	**Get_FIFO_Watermark_Status** (uint8_t *Status) Get the LSM6DSO32 FIFO watermark status.
LSM6DSO32StatusTypeDef	**Set_FIFO_INT1_FIFO_Full** (uint8_t Status) Set the LSM6DSO32 FIFO full interrupt on INT1 pin.
LSM6DSO32StatusTypeDef	**Set_FIFO_INT1_FIFO_Overrun** (uint8_t Status) Set the LSM6DSO32 FIFO overrun interrupt on INT1 pin.
LSM6DSO32StatusTypeDef	**Set_FIFO_INT1_FIFO_Threshold** (uint8_t Status) Set the LSM6DSO32 FIFO threshold interrupt on INT1 pin.
LSM6DSO32StatusTypeDef	**Set_FIFO_INT2_FIFO_Full** (uint8_t Status) Set the LSM6DSO32 FIFO full interrupt on INT2 pin.
LSM6DSO32StatusTypeDef	**Set_FIFO_INT2_FIFO_Overrun** (uint8_t Status) Set the LSM6DSO32 FIFO overrun interrupt on INT2 pin.
LSM6DSO32StatusTypeDef	**Set_FIFO_INT2_FIFO_Threshold** (uint8_t Status) Set the LSM6DSO32 FIFO threshold interrupt on INT2 pin.
LSM6DSO32StatusTypeDef	**Set_FIFO_Watermark_Level** (uint16_t Watermark) Set the LSM6DSO32 FIFO watermark level.
LSM6DSO32StatusTypeDef	**Set_FIFO_Stop_On_Fth** (uint8_t Status) Set the LSM6DSO32 FIFO stop on watermark.
LSM6DSO32StatusTypeDef	**Set_FIFO_Mode** (uint8_t Mode) Set the LSM6DSO32 FIFO mode.
LSM6DSO32StatusTypeDef	**Get_FIFO_Tag** (uint8_t *Tag) Get the LSM6DSO32 FIFO tag.
LSM6DSO32StatusTypeDef	**Get_FIFO_Data** (uint8_t *Data) Get the LSM6DSO32 FIFO raw data.
LSM6DSO32StatusTypeDef	**Get_FIFO_Sample** (uint8_t *Sample, uint16_t Count=1) Get the LSM6DSO32 FIFO sample.
LSM6DSO32StatusTypeDef	**Get_FIFO_X_Axes** (int32_t *Acceleration) Get the LSM6DSO32 FIFO accelero single sample (16-bit data per 3 axes) and calculate acceleration [mg].
LSM6DSO32StatusTypeDef	**Set_FIFO_X_BDR** (float Bdr) Set the LSM6DSO32 FIFO accelero BDR value.
LSM6DSO32StatusTypeDef	**Get_FIFO_G_Axes** (int32_t *AngularVelocity) Get the LSM6DSO32 FIFO gyro single sample (16-bit data per 3 axes) and calculate angular velocity [mDPS].
LSM6DSO32StatusTypeDef	**Set_FIFO_G_BDR** (float Bdr) Set the LSM6DSO32 FIFO gyro BDR value.
LSM6DSO32StatusTypeDef	**Get_Timestamp_Status** (uint8_t *Status) Get the LSM6DSO32 timestamp enable status.

LSM6DSO32StatusTypeDef	**Set_Timestamp_Status** (uint8_t Status) Set the LSM6DSO32 timestamp enable status.
LSM6DSO32StatusTypeDef	**Set_FIFO_Timestamp_Decimation** (uint8_t Decimation) Set the LSM6DSO32 FIFO timestamp decimation.
LSM6DSO32StatusTypeDef	**Set_FIFO_Compression_Algo_Init** (uint8_t Status) Set the LSM6DSO32 FIFO compression initialization status.
LSM6DSO32StatusTypeDef	**Set_FIFO_Compression_Algo_Enable** (uint8_t Status) Set the LSM6DSO32 FIFO compression enable status.
LSM6DSO32StatusTypeDef	**Set_FIFO_Compression_Algo_Set** (uint8_t Compression) Set the LSM6DSO32 FIFO compression configuration and enable status.
LSM6DSO32StatusTypeDef	**Set_FIFO_Compression_Algo_Real_Time_Set** (uint8_t Status) Set the LSM6DSO32 FIFO compression real time enable status.
uint8_t	**IO_Read** (uint8_t *pBuffer, uint8_t RegisterAddr, uint16_t NumByteToRead) Utility function to read data.
uint8_t	**IO_Write** (uint8_t *pBuffer, uint8_t RegisterAddr, uint16_t NumByteToWrite) Utility function to write data.

Private Member Functions

LSM6DSO32StatusTypeDef	**Set_X_ODR_When_Enabled** (float Odr) Set the LSM6DSO32 accelerometer sensor output data rate when enabled.
LSM6DSO32StatusTypeDef	**Set_X_ODR_When_Disabled** (float Odr) Set the LSM6DSO32 accelerometer sensor output data rate when disabled.
LSM6DSO32StatusTypeDef	**Set_G_ODR_When_Enabled** (float Odr) Set the LSM6DSO32 gyroscope sensor output data rate when enabled.
LSM6DSO32StatusTypeDef	**Set_G_ODR_When_Disabled** (float Odr) Set the LSM6DSO32 gyroscope sensor output data rate when disabled.

Private Attributes

TwoWire *	**dev_i2c**
SPIClass *	**dev_spi**
uint8_t	**address**
int	**cs_pin**
uint32_t	**spi_speed**
lsm6dso32_odr_xl_t	**acc_odr**
lsm6dso32_odr_g_t	**gyro_odr**
uint8_t	**acc_is_enabled**
uint8_t	**gyro_is_enabled**
stmdev_ctx_t	**reg_ctx**

Detailed Description

Abstract class of an LSM6DSO32 Inertial Measurement Unit (IMU) 3 axes sensor.

Constructor & Destructor Documentation

◆ LSM6DSO32Sensor() [1/2]