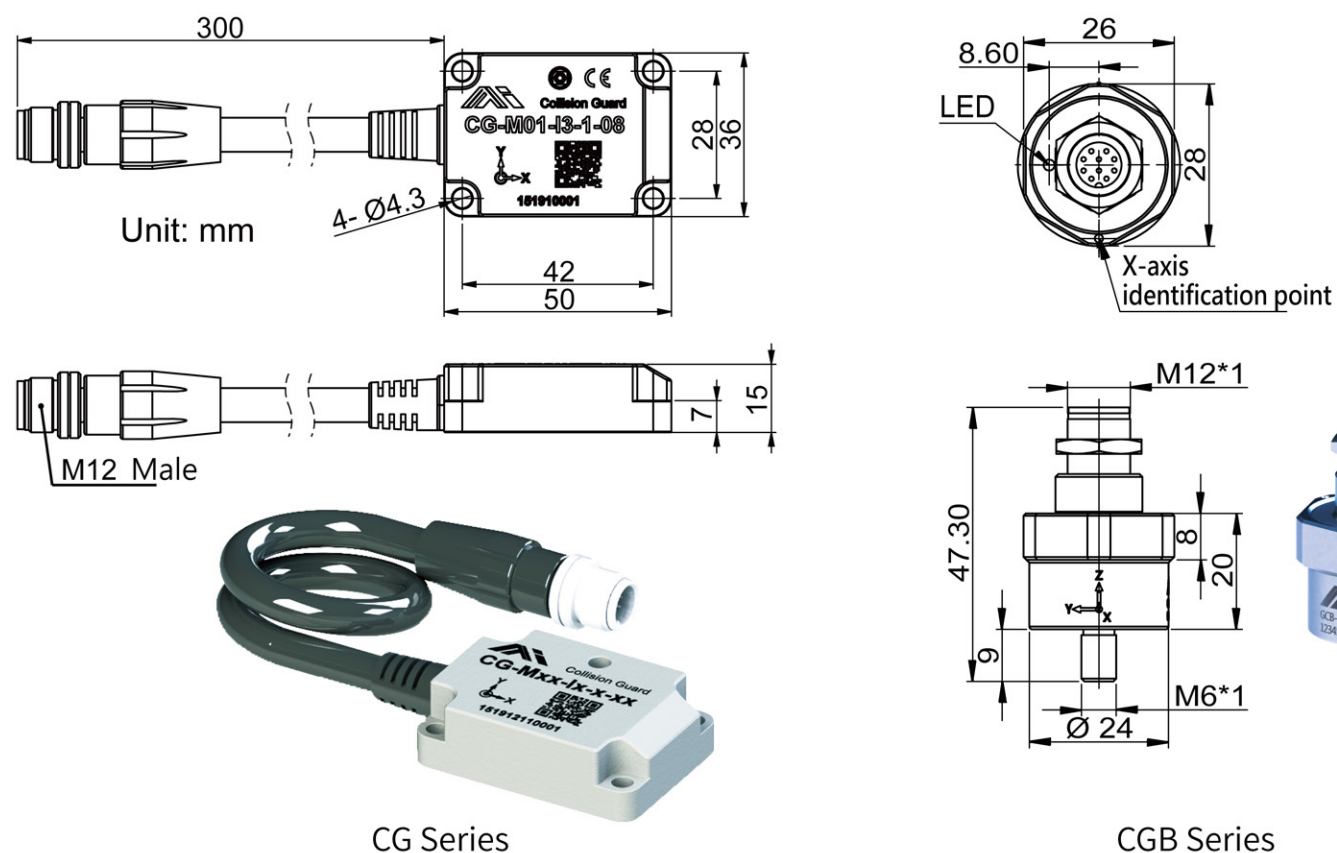
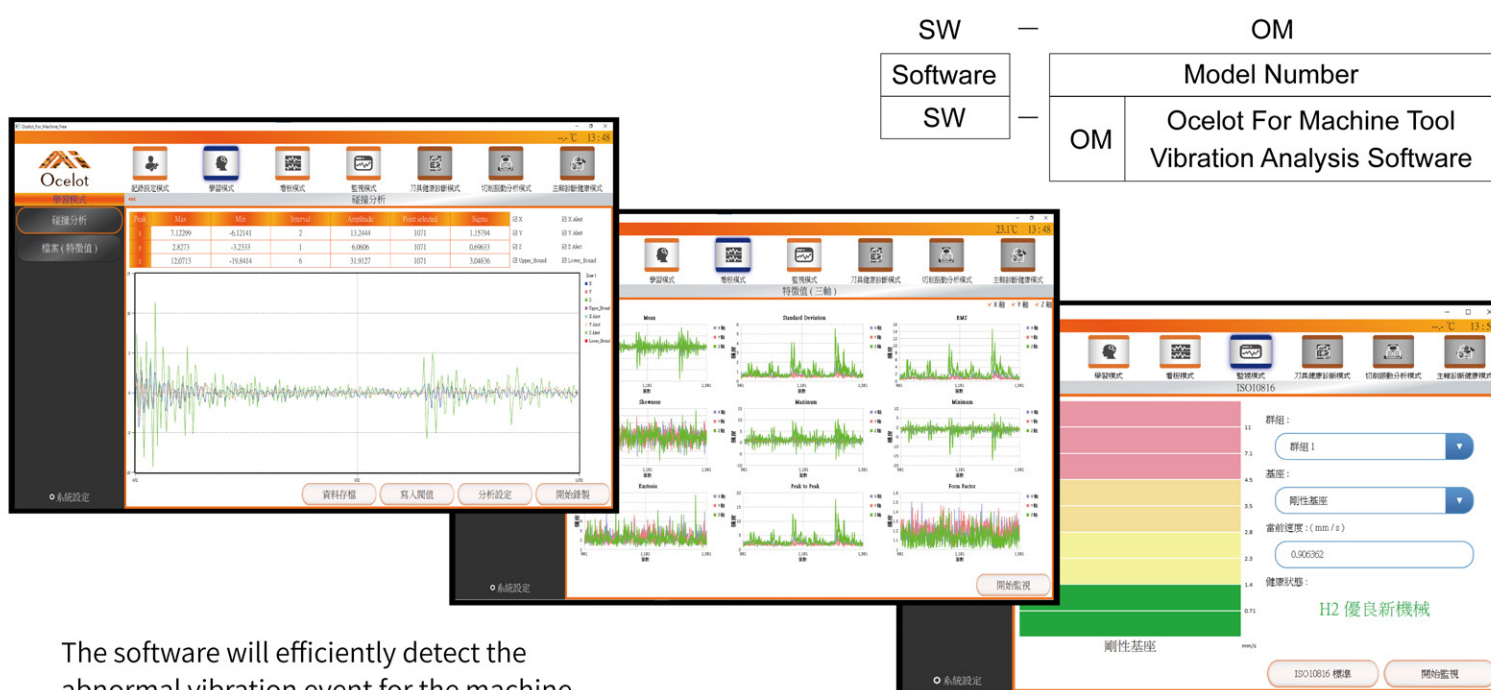


## Outline Dimension



## Ocelot For Machine Tools

Optional



The software will efficiently detect the abnormal vibration event for the machine



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Creative Maintenance Technology Co., Ltd.

## CG-M0 Series CGB-M0

## Collision Guard Sensor

### Summary

CG / CGB series sensor was design for protecting the machine from the crash that causes by machine spindle or turret / toolholder collides with the workpiece . When the unpredictable event happens , the protection system will connect with the CNC panel immediately and force the machine shut down to prevent from downtime losses . This system can also utilize for monitoring the moving system such as machine arms .

### Features

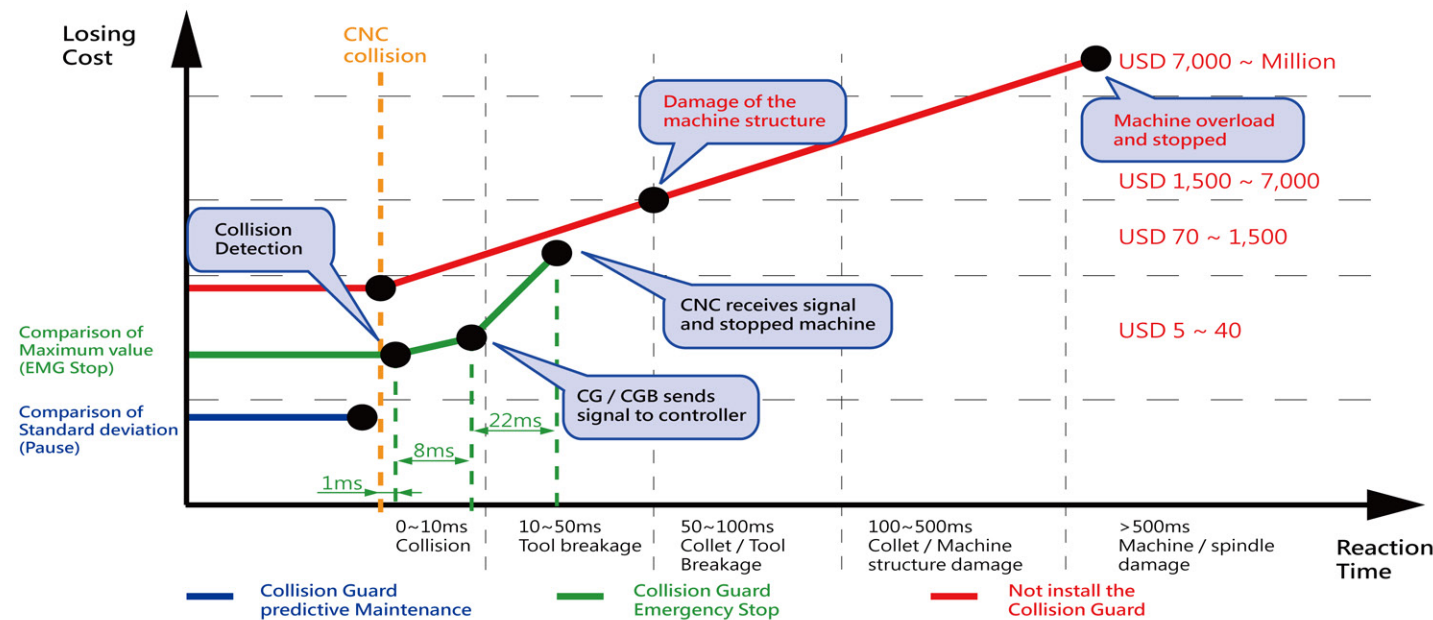
- Equipped with a high accuracy 3 axis MEMS accelerator and a temperature sensor
- Provide maximum value and standard deviation value for threshold comparison (Fault Detect & Predictive Maintenance)
- The machine tools can be protected by recording and analysis the data form the "learning mode" in the OCELOT software
- The inbuilt memory can store up to 100 abnormal events
- Built-in edge computing unit , less than 10ms reaction time to detection the abnormal events
- Assorted with OCELOT series software (CNC ONLINE / OFFLINE)
- The system records the real time vibration feature during manufacturing process for data analysis , and the health state of the machine spindle will be predicted by further analysis process such as AI analysis technique
- CNC ONLINE software can detect tool breakage and evaluated the tool wear and fault monitoring
- Assorted with a high-speed adapter board (<6ms) and easy installed
- The warning lighting and the reset function are designed and improve the user experience
- Equipped with multi-colour LED indicator light to clearly distinguish the operating status of the sensor

### Applications

- Machine spindle collision detection & protection for the milling machine or manufacturing factories
- Turret or toolholder protection for the lathes machine
- Moving edge motioning and collision detection for robotic arms
- Industrial courier system collision detection & protection
- Tool wear RUL System
- Vibration analysis for machine tools



## Installation Difference Comparison



## Ordering Information

CG	M01		I3		1		08	
Series	Series Number & Communication Protocol		Model & Axis		Bandwidth		Measuring Range	
CG	M01	RS-232C	I3	3 Axes	1	1kHz	02	±2g
CGB	M02	RS-485 MODBUS RTU					04	±4g
	M03	RS-422					08	±8g

M04	RS-232C	I3	3 Axes	6	6kHz	02	±2g
M05	RS-485 MODBUS RTU					04	±4g
M06	RS-422					08	±8g
						16	±16g

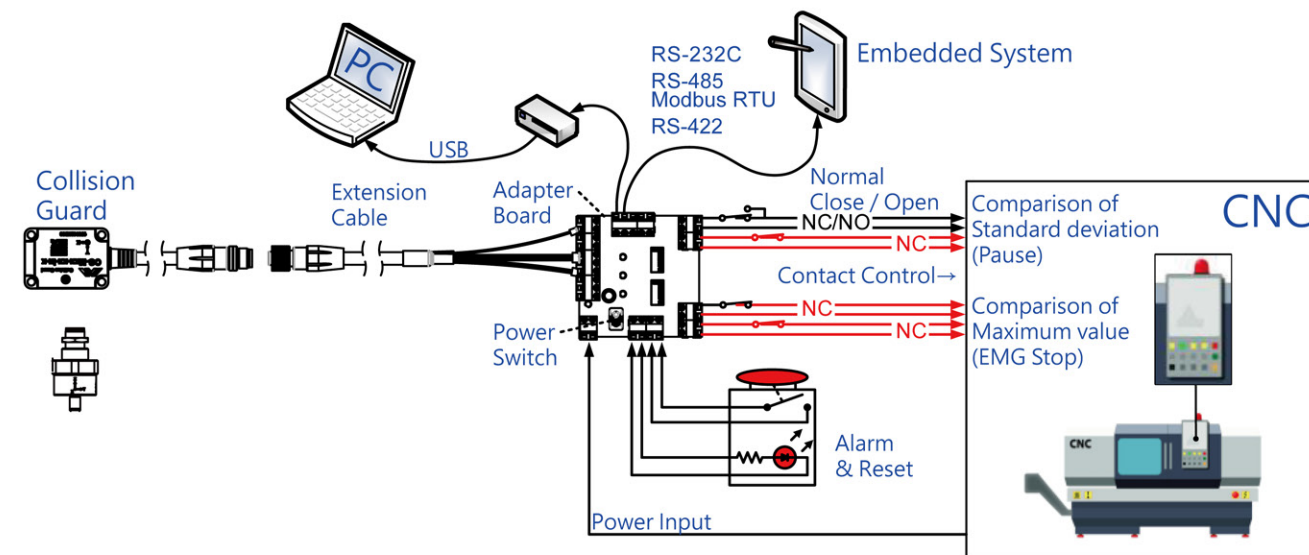
※1 The maximum communication distance of M01/M04 is less than 10 meters

## Specification

CG-M  
CGB-M  
Collision  
Guard  
Sensor

	CG Series	CGB Series
Consumption Current @ Operating Voltage	DC 24V ±10% / 10mA@24VDC Below	
Communication Protocol & Baud Rate	RS-232 @921600bps RS-422 @921600bps RS-485 Modbus RTU @115200bps	
Installation Method	M4 Screw Fixing / Super Strong Magnets	M6 Screw Fixing / Super Strong Magnets
Maximum Impact	10,000g	
Dimension W x D x H	50mm x 36mm x 15mm Without Magnets & Cable	28mm x 26mm x 47.3mm Without Magnets & Cable
Shell Material	SUS316 Stainless Steel	SUS Stainless Steel
Weight	125g ±5%	50g ±5%
Working Temperature	-10 ~ +85 °C	
Storage Temperature	-20 ~ +100 °C	
Working Humidity	0 ~ 95%	
Water & Dust Resistance	IP67	

## System Block Diagram



### CNC OFFLINE:

System is installed on spindle or turret / tool holder of operating machine, vibration data of the manufacturing process will be stored by transmitting signal to learning mode of PC or embedded system.

The collected data is analyzed and calculated into collision threshold value for each axis, and then transmitted to digital intelligent vibration sensor as comparison reference.

EMG Stop and Pause buttons of CNC panel are controlled by I/O series connection, when the sensor detects a signal that exceeds the threshold, I/O will be triggered and immediately stop or suspend CNC machine until problem is resolved and outer button is released.

### CNC ONLINE:

This system covers all the functions from CNC OFFLINE and adds a real-time vibration monitoring function.

The system is required to connect with PC or embedded system for vibration recording of manufacturing process and integrated the CNC control program as reference for further analysis process.

e.g., tool wear monitoring, tool breakage, detection and poor finish accuracy.

