

[ **PRODUCT WARRANTY** ]

1. This product offers a limited 1 year warranty, starting from the original date of purchase. Valid only in Japan.
2. If the product fails during within the warranty period, with the failure not resulting from misuse, bad installation or after-sale damage, a free replacement will be sent to the dealership from whom the product was originally purchased. Fees may apply for travel or onsite service.
3. All warranty claims must include both the original sales receipt and defective product, and such must be submitted to the dealership from whom the product was originally purchased.
4. In the event that the original dealership no longer exists, or the dealership has moved, or the dealership refuses to honor the warranty due to "product transfer of ownership" reasons, the owner of the product may contact Kiramek Inc. directly to obtain details on warranty replacement.
5. Warranty replacement where the product is sent to the dealer or Kiramek via mail does not cover postage expenses incurred by the customer. In addition, this warranty does not cover dealership installation fees that may apply. Consult with your dealer for further details.
6. Other cases in which this product warranty will not apply:
  - Installation error
  - Failed product will require unreasonable repairs or installation work
  - Decline in product price
  - Damage due to fire, earthquake, flood, lightning, saltwater, other natural disasters
  - Installation in any vehicle other than normal 12v passenger cars
  - No Owner's Manual or Warranty card included with the product (contact your dealer immediately after purchase if this happens)
  - Date of purchase, owner's name, and/or seller's information is missing, altered or unreadable
7. This warranty document will not be reissued so please do not throw it away or allow it to be lost.

**PLEASE NOTE:**

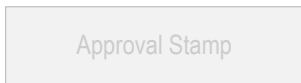
- This product warranty is limited to defective parts only and does not provide any compensation whatsoever for damages associated with the product or its installation.
- If you have questions or comments regarding this warranty, please direct your correspondence to the dealership from whom you originally purchased this product.
- Please fill out the warranty claim form below if your product has failed within the warranty period, and submit it to your dealer. Take care to accurately fill in the information as mistakes can invalidate your warranty claim.



**PRODUCT WARRANTY CLAIM**

<b>PRODUCT DESC.:</b>	Digital Tilt Sensor	<b>MODEL:</b>	KST-24
<b>Warranty Period:</b>	1 YEAR <i>(validated only by dealer and/or dated proof of purchase)</i>		
<b>Date of Purchase*:</b>	Year: _____, Month: _____, Day: _____		
<b>Customer Info.*:</b>	Name: _____		
	Address: _____		
	Phone: _____	Email: _____	
<b>Seller Info.*:</b>	Name: _____		
	Address: _____		
	Phone: _____	Website: _____	

\* Please fill in these marked sections above completely.



**Manufacturer:** KIRAMEK, Inc.  
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Handa-shi, Aichi-Ken 475-0936 JAPAN

**Contact TEL:** +81-569-20-5585 ( Operating Hours (ex. Sat./Sun./Holidays): 10:00AM ~ NOON, 1:00PM ~ 4:00PM )

**NOTE:** Warranty Claims not accepted without valid Approval Stamp and/or dated proof of purchase.

**OWNER'S MANUAL**

**KST-24  
Dual Axis Tilt Sensor**

**READ BEFORE INSTALLING**

Thank you for purchasing this KST-24 two-stage digital tilt sensor. The KST-24 is a sophisticated electronic device that will serve to protect your vehicle for many years if installed and used properly. Please read this entire Owner's Manual prior to installation and usage. We hope you are pleased with the product!

**SAFETY NOTICE**



**CAUTION**

- DO NOT disconnect the vehicle's battery during installation, as it could adversely affect onboard airbag systems, anti-theft radios or vehicle diagnostics.
- TAKE CARE when installing this sensor. Improper wiring connections can lead to damaged vehicle electronics and/or a damaged sensor! Product warranty does not cover improper installation.

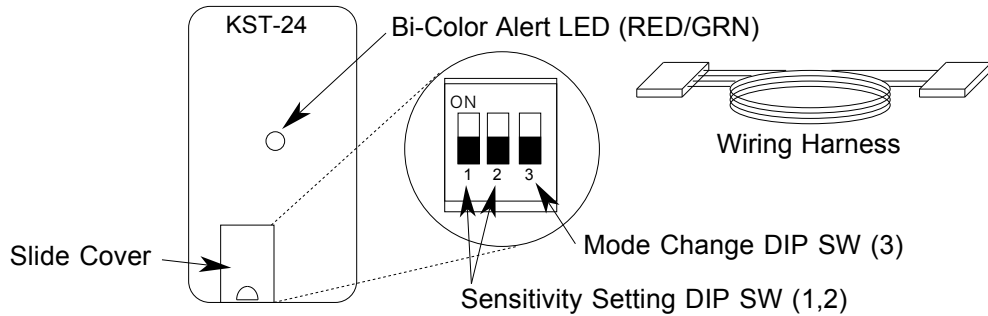
**GENERAL PRECAUTIONS**



**WARNINGS**

- This product is a 12vdc device. Do not attempt installation on 24v vehicles.
- Read all the information in this short Owner's Manual prior to installation.
- Keep this product away from water, intense heat or humidity, dirt, and flammable liquids. An electrical short in the presence of a flammable substance can cause severe injury or even death.
- Do not attempt installation of this product if you are unfamiliar with automotive electronics or if you are not absolutely sure of how to connect the wiring. Professional installation by a certified installer is highly recommended for safety and proper functionality of the product.
- DO NOT INSTALL THIS PRODUCT IN THE ENGINE COMPARTMENT!
- Failure to mount this product properly will result in undersired or unexpected operation.
- Do not install this product close to another electronic device that could cause interference.
- Kiramek Inc. makes no warranty against theft or vandalism of the vehicle in which this product is installed.
- Any damage to this product, to the vehicle, to personal property and any physical injury or death resulting from accidents, improper use, neglect, faulty wiring, incorrect installation, modification, alteration or repair outside Kiramek Inc, shall in no way be the responsibility of Kiramek Inc. Kiramek Inc offers no insurance policy against loss, financial or otherwise.

## PRODUCT DESCRIPTION



**NOTE:** After the sensor powers ON, you must wait 20s before testing it. You must then wait 5s between tests (triggers).

## WIRING HARNESS DESCRIPTION

**Harness Wiring:** Connect the connector on one end of the included wiring harness to the KST-24 sensor and the other end to your car alarm system.

<b>RED</b>	Constant (+) 12vdc input
<b>BLACK</b>	Connect to VISION Car Alarm YELLOW wire, or to general Ground-When-Armed wire
<b>WHT/RED</b>	2nd Stage "Full Trigger" output (duration 1000 msec.); 100mA max. output
<b>ORANGE</b>	1st Stage "Warning" output (duration 350 msec.); 100mA max. output

**TIP:** Connecting your KST-24 to other sensors is easier, faster and safer when done in conjunction with the optional SB-03 Sensor Splitter Unit.

**Sensor Average Current Consumption:** 1.2mA

## PLEASE READ BEFORE INSTALLING

The tilt sensor must be installed such that the bi-color LED side of the product is facing straight up. In the event you cannot mount the sensor with the LED facing up, it **MUST NOT** be mounted at an angle of more than 45 degrees from the LED-up condition.

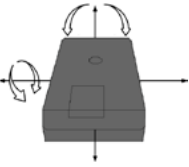
Mount the tilt sensor inside the vehicle, on a flat surface by affixing the included double sided tape to the bottom of the unit (opposite the LED). Please also consider the following:

1. AVOID mounting in locations where the sensor is exposed to direct sunlight.
2. DO NOT mount in air vent ducts where the temperature can vary wildly or where water can condense on the sensor. Such will cause malfunction or failure of the sensor.
3. DO NOT place in water or near water sources.
4. This tilt sensor is intended to be used only when the vehicle is parked (i.e., not in motion).

**NOTE:** The KST-24 is an "accelerometer" based sensing device and as such any severe jolts or impacts to the vehicle could be incorrectly interpreted as tilt which will result in a trigger output.

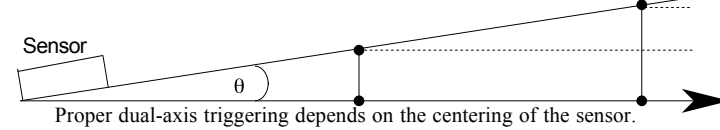
## TILT SENSOR OPERATION

This digital tilt sensor works by detecting the vehicle inclination at the time the alarm system is armed. If the vehicle inclination later changes beyond the user-programmable threshold angle of the sensor, a 1st State (Warning/Green LED) or 2nd Stage (Full Trigger/RED LED) output will be sent to the alarm. The KST-24 can detect 2-axis of tilt, as shown in the graphic at right. So for example, if using the default sensitivity of 1.0/1.2 degrees, the tilt sensor would send a 1st Stage Warning output when the vehicle angle changes +/- 1.0 degree from the initial angle. The sensor would then send a full trigger output if the angle continued to rise to 1.2 degrees or higher.



### TIP

Mount the tilt sensor in the very center of the vehicle for best results. Refer to the graphic below, and imagine the two vertical lines shown as jackup points under the vehicle. The farther the sensor is away from the jack, the higher the vehicle must be jacked up to trigger the sensor. So if the sensor is too far off center in the vehicle, it may be possible for a thief to jack up the car just enough to steal a tire without the sensor triggering!



Mounting the sensor off center can make one side of the vehicle too sensitive, and the other side not sensitive enough.

## ADJUSTING SENSITIVITY

The DIP switch is accessible under the Slide Cover. Four sensitivity levels (trigger threshold) can be set in degrees using the first two DIP switches, as shown in the table below.

DIP1	DIP2	1st Stage Sensitivity Angle	2nd Stage Sensitivity Angle
OFF	OFF	0.4	0.6
OFF	ON	0.6	0.8
ON	OFF	0.8	1.0
ON	ON	1.0	1.2

## SENSOR MODES

### AUTO RESET

DIP SW #3 = ON

Sensor automatically resets its inclination angle after the sensor triggers (1st or 2nd Stage). This mode prevents the sensor from continuing to trigger the alarm siren in the event the vehicle angle remains beyond the trigger threshold of the sensor for a long time. Can be useful in localities with noise pollution ordinances.

**NOTE:** If the vehicle is tilted very, very slowly, it is possible that the sensor would never trip the 2nd Stage Full Trigger (only triggering the 1st Stage each time). But this is highly unlikely in most any jackup/towing cases.

### MAX PROTECT

DIP SW #3 = OFF

In this mode, the sensor will continue to send trigger outputs until the vehicle tilt angle returns below the sensor trigger threshold.