



KINOVA™ *Universal sensor support*





User Guide

KINOVA
Achieve Extraordinary

Contents

About this document.....	3
Warranty.....	4
Disclaimer.....	5
General information.....	6
Components.....	7
Sensor holder installation overview.....	8
Mechanical integration of sensor holder on the actuator.....	9
Mechanical integration of the sensor on the holder.....	10
Normal use definition.....	11
Electromagnetic interference from radio wave sources.....	12
Contacting support.....	13

About this document

-  Read all instructions before using this product.
-  Keep these instructions for future reference.
-  Read all warnings on the product and in this guide.
-  Follow all instructions.

This document contains information regarding product setup and the operation. It is intended for:

- Field service, customer support and sales employees of authorized Kinova distributors
- Kinova product end users

Warranty

This section describes the Kinova warranty terms.

Subject to the terms of this clause, Kinova warrants to End User that the Products are free of defects in materials and workmanship that materially affect their performance for a period of two (2) years from the date Kinova ships the Products to the End User ("Delivery Date").

Kinova agrees to repair or replace (at Kinova's option) all Products which fail to conform to the relevant warranty provided that:

1. Notification of the defect is received by Kinova within the warranty period specified above.
2. Allegedly defective Products are returned to Kinova, at the End User's expense, with Kinova's prior authorization within thirty (30) days of the defect becoming apparent.
3. The Products have not been altered, modified or subject to misuse, incorrect installation, maintenance, neglect, accident or damage by excessive current or used with incompatible parts
4. The End User is not in default under any of its obligations under this Agreement.
5. Replacement Products must have the benefit of the applicable warranty for the remainder of the applicable warranty period.

If Kinova diligently repairs or replace the Products in accordance with this section, it will have no further liability for a breach of the relevant warranty.

Allegedly defective Products returned to Kinova in accordance with this contract will, if found by Kinova on examination not to be defective, be returned to End User and Kinova may charge a fee for examination and testing.

The warranty cannot be assigned or transferred and is to the sole benefit of the End User.

Where the Products have been manufactured and supplied to Kinova by a third party, any warranty granted to Kinova in respect of the Products may be passed on to the End User.

Kinova is entitled in its absolute discretion to refund the price of the defective Products in the event that such price has already been paid.

Disclaimer

KINOVA™ and Kinova's logo are trademarks of Kinova Inc., herein referred to as Kinova. All other brand and product names are trademarks or registered trademarks of their respective corporations.

The mention of any product does not constitute an endorsement by Kinova. This manual is furnished under a lease agreement and may only be copied or used within accordance with the terms of such lease agreement. Except as permitted by such lease agreement, no part of this publication may be reproduced, stored in any retrieval system, or transmitted, in any form or by any means, electronic, mechanical, recording, or otherwise, without prior written consent of Kinova.

The content of this manual is furnished for informational use only, is subject to change without notice, and should not be construed as a commitment by Kinova. Kinova assumes no responsibility or liability for any errors or inaccuracies that may appear in this document.

Changes are periodically made to the information herein; these changes will be incorporated into new editions of this publication. Kinova may make improvements and/or changes in the products and/or software programs described in this publication at any time.

Address any questions or comments concerning this document, the information it contains or the product it describes to:

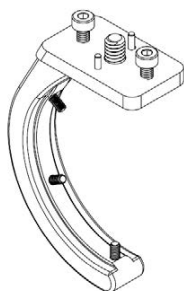
support@kinovarobotics.com

Kinova may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligations to you.

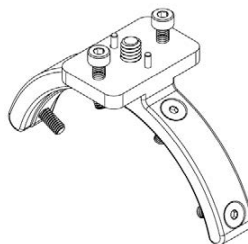
General information

The KINOVA™ Universal sensor holder for KINOVA™ KA-58 and KA-75+ actuators gives the ability to mechanically mount a camera or other type of sensor in a stable fashion on a Kinova robotic arm without damaging the robot arm.

The sensor holder comes in two configurations, one for small (KA-58) actuators, and one for large (KA-75+) actuators.




KA-58
sensor holder



KA-75+
sensor holder

The sensor holder can be affixed with screws to the outer edge of the actuator. The sensor holder has mounting screws to accommodate different types of sensors.

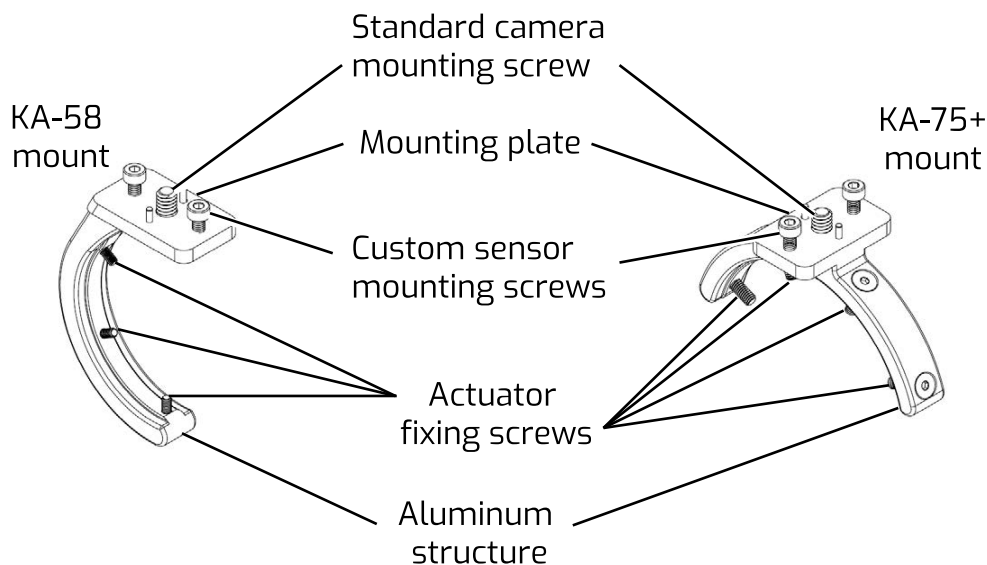
 Do not modify this equipment without authorization of the manufacturer.

 The Normal Use Definition contains some fundamental information on the proper operation of the Sensor holder for the KA-58 and KA-75+ actuators.

Note: The sensor holder only provides a mechanical mounting of the sensor on the arm. It does not provide power or signals integration with the robotic arm.

Components

This section describes the components of the sensor holder for the KA-58 and KA-75+ actuators.



The main body of the sensor mount consists of a curved aluminum structure.

The aluminum structured is affixed to the actuator using fixing screws on the underside of the aluminum structure. The KA-58 sensor mount uses three mounting screws, while the KA-75+ mount uses four.


On the upper side of the mount is a mounting plate with screws for mounting sensors. There is one standard camera mounting screw (0.250-20x0.500) and two custom sensor mounting screws (M3x14 for KA-58 and M4x16 for KA-75+).

Sensor holder installation overview

This section describes the sensor holder installation.

The sensor holder installation on the KA-58 and KA-75+ actuator consists of two parts:

1. Mechanical integration of the sensor holder on the actuator.
2. Mechanical integration of the sensor on the holder.

 When you perform the installation, make sure the robot arm is powered OFF.

Mechanical integration of sensor holder on the actuator

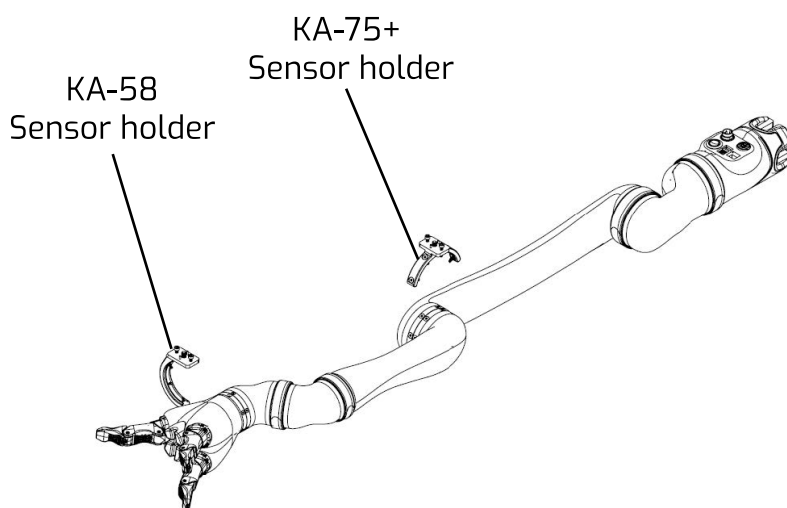
This section describes the procedure to mechanically integrate the sensor holder on the actuator.

About this task

The procedure to link a KA-58 or KA-75+ mechanically is quite similar.

Procedure

1. Remove the grey plastic ring covering the actuator where you want to attach the sensor holder. Use a small lever with a thin edge like a to lift the plastic ring and remove it in two parts. Keep the plastic ring in a secured area if you want to reinstall it in the future.
2. Put the sensor holder on the actuator aligned with the screw holes corresponding to the desired orientation. When the position is selected, put aside the sensor holder and remove the screws off the actuator where you want to install the sensor holder (You will need to remove three M3 screws for the KA-58 and four M4 screws for the KA-75+). Make sure to only remove the sensor holder's corresponding screws on the actuator. Keep the removed screws in a secured area if you want to reinstall them in the future.



3. Place the sensor holder back on the actuator so that the screw holes of the sensor holder and actuator are properly aligned. Screw the sensor holder screws into the actuators. The torques to be applied to connect the holder to the actuator are 0.5 Nm for the KA-58 and 1 Nm for KA-75+.

Mechanical integration of the sensor on the holder

This section describes how to attaching the sensor to the holder.


There are two ways of attaching the sensor to the sensor holder.

1. If the sensor already has a standard camera mount screw hole, you can install the sensor using the standard camera mount screw. You don't have to use the two custom mounting screws.
2. If the sensor doesn't have standard camera mount screw hole, carefully drill screw holes in the sensor housing matching the distance and dimensions of the provided custom mount screws.

Normal use definition

This section describes the normal use of the KINOVA™ Sensor holder.

The definition of a normal use of the sensor holder for KA-58 & KA-75 actuators is to make sure you don't exceed the robot arm specifications in terms of payload capacity.

 The robotic arm's self-collision avoidance during motion of the arm does not take into account the addition of the sensor holder.

Electromagnetic interference from radio wave sources

This section describes electromagnetic interference considerations for the JACO robotic arm.

Even if the product complies with all relevant standards, your arm may still be susceptible to electromagnetic interference (EMI), which is interfering electromagnetic energy (EM) emitted from sources such as radio stations, TV stations, amateur radio (HAM) transmitters, two way radios, and cellular phones. The interference (from radio wave sources) can cause the product to stop moving for a period of 10 seconds. In this case, the device will simply re-initialize and you will be able to continue to use it. In extremely rare case, it can also permanently damage the control system.


The intensity of the interfering EM energy can be measured in volts per meter (V/m). The product can resist EMI up to certain intensity. This is called “immunity level”. The higher the immunity level is, the greater is the protection. At this time, current technology is capable of achieving at least a 20 V/m immunity level, which would provide useful protection from the more common sources of radiated EMI.


There are a number of sources of relatively intense electromagnetic fields in the everyday environment. Some of these sources are obvious and easy to avoid. Others are not apparent and exposure is unavoidable. However, we believe that by following the warnings listed below, your risk to EMI will be minimized.


The sources of radiated EMI can be broadly classified into three types:


1. Gripper-held portable transceivers (e.g. transmitters-receivers with the antenna mounted directly on the transmitting unit, including citizens band (CB) radios, walkie-talkie, security, fire and police transceivers, cellular phones, and other personal communication devices). Some cellular phones and similar devices transmit signals while they are ON, even if not being actively used.
2. Medium-range mobile transceivers, such as those used in police cars, fire trucks, ambulances and taxis. These usually have the antenna mounted on the outside of the vehicle.
3. Long-range transmitters and transceivers, such as commercial broadcast transmitters (radio and TV broadcast antenna towers) and amateur (HAM) radios. Other types of gripper-held devices, such as cordless phones, laptop computers, AM/FM radios, TV sets, CD players, cassette players, and small appliances, such as electric shavers and hair dryers, so far as we know, are not likely to cause EMI problems to your device.

Because EM energy rapidly becomes more intense as one move closer to the transmitting antenna (source), the EM fields from gripper-held radio wave sources (transceivers) are of special concern. It is possible to unintentionally bring high levels of EM energy very close to the control system while using these sorts of devices. Therefore, the warnings listed below are recommended to reduce the effects of possible interference with the control system.

 Do not operate gripper-held transceivers (transmitter’s receivers), such as citizens band (CB) radios, or turn ON personal communication devices, such as cellular phones, while the device is turned ON.

 Be aware of nearby transmitters, such as radio or TV stations, and try to avoid coming close to them.

 Be aware that adding accessories or components, close to the device may make it more susceptible to EMI.

 Report all incidents of unintended shut down to your local distributor, and note whether there is a source of EMI nearby.

Contacting support

If you need help or have any questions about this product, this guide or the information detailed in it, please contact a Kinova representative at support@kinovarobotics.com.

We value your comments!

To help us assist you more effectively with problem reports, the following information will be required when contacting Kinova or your distributor support:

- Product serial number (This will allow the support agent to have all the information regarding your product as the software version running in the device, the part revisions and characteristics, etc.)
- Date/Time of the problem
- Environment where the problem occurred
- Actions performed immediately before the problem occurred

KINOVA

Kinova Inc.

(Headquarters)

4333 Boul. de la Grande Allée
Boisbriand, Qc, Canada
J7H 1 M7

+1 (514) 277 – 3777

www.kinovarobotics.com

info@kinovarobotics.com

Kinova Europe GmbH

Friedrich-Ebert-Allee 13
53113 Bonn, Deutschland

+49 (0) 228-9293-9148

www.kinovarobotics.de

support@kinovarobotics.de