











USER MANUAL

Sigma Intégrale
[Revision History]

[Safety Precautions]

This document uses the following annotation. Make sure to strictly follow these precautions:

Symbol	Meaning	Safety Precaution	Importance
	Danger / Injury	Denotes immediate hazards that will probably cause severe bodily injury or death as a result of incorrect operation.	Danger
	Electrical Shock		
	Caution	Denotes hazards that could cause bodily injury and product or property damage as a result of incorrect operation.	Caution
	Fire		
	Burn		
	Prohibited	Denotes actions prohibited to ensure longevity and proper working order of the equipment.	Information
	Disassembly Prohibited		
	Mandatory	Denotes actions that must be carried out.	Procedure

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[Complete List of Parts]

A complete DK Motion System should come with the following parts:

3-Actuator System:

Part	Quantity
Actuator with sliding foot	3
Motion controller	1
Mounting brackets	3
M8 screws, countersunk, black	24
T-slot nuts for aluminum extrusion	12
Locktite tube	1
Network cables	1
Actuator power cable, 1m	1
Actuator power cable, 2m	2
Actuator signal cable, 1m	1
Actuator signal cable, 2m	2
Controller power cable	1

4-Actuator System:

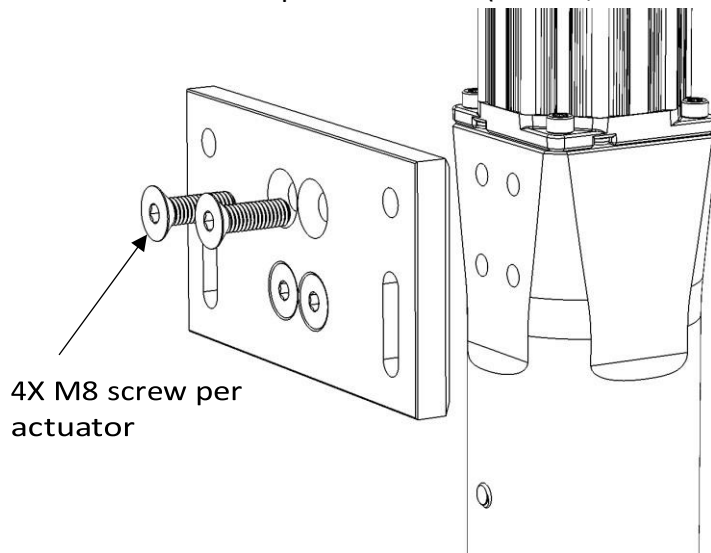
Part	Quantity
Actuator with sliding foot	4
Motion controller	1
Mounting brackets	4
M8 screws, countersunk, black	32
T-slot nuts for aluminum extrusion	16
Locktite tube	1
Network cables	1
Actuator power cable, 1m	2
Actuator power cable, 2m	2
Actuator signal cable, 1m	2
Actuator signal cable, 2m	2
Controller power cable	1

[Instructions for Installation]

Your new DK actuator system is designed to be mounted on t-slotted aluminum extrusions. The included bracket is designed to fit a variety of aluminum extrusion profiles including: 10- and 15-series (inch) or 40- and 45-series (metric).

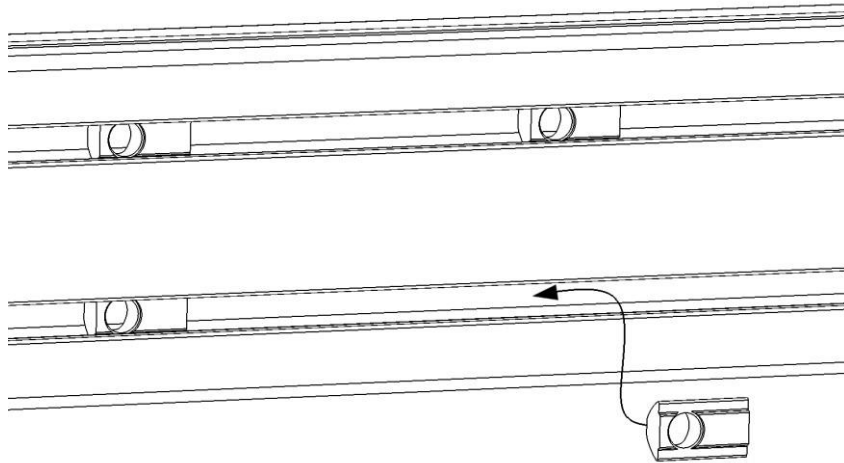
Actuator Installation

1. Using a 5mm hex key, attach the mounting bracket to the actuator with the included M8 screws. You may wish to apply some of the included medium strength Loctite thread locker to these screws. Torque to 180 in-lb (15 ft-lb, 20.3 N-m).



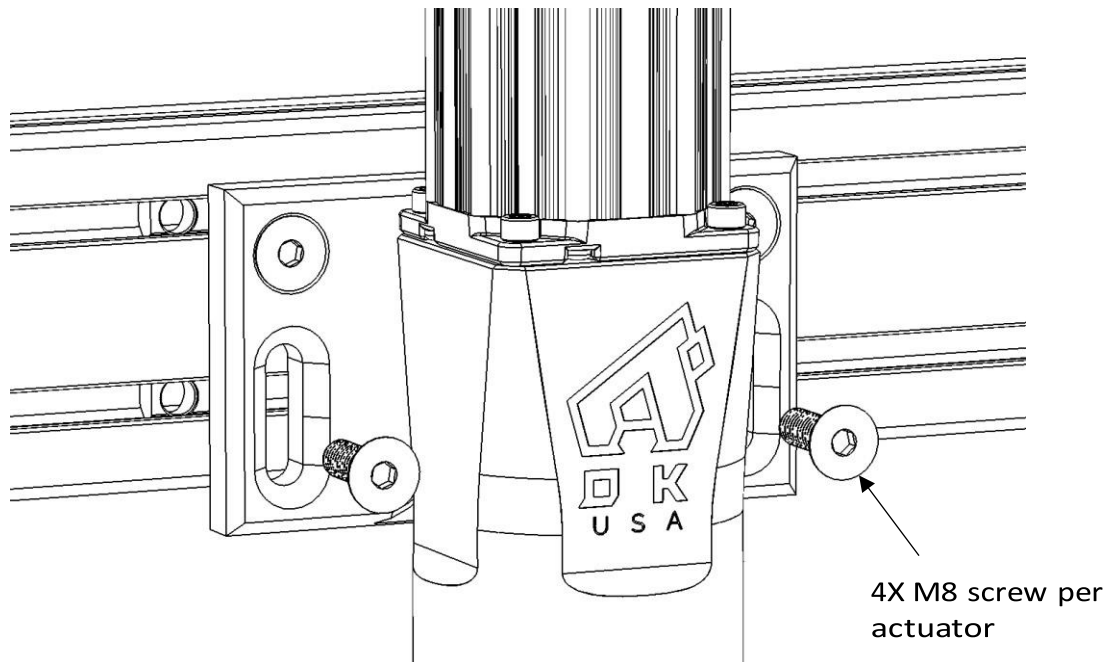
DK2 shown in illustration, other DK products similar

2. Install the included t-slot nuts into your profile. The included t-slot nuts are intended for 40-series (metric) aluminum extrusion profiles so they may not fit your particular profile. You may wish to orient the t-slot nuts differently than shown below – the orientation does not matter for the DK2 motion system.



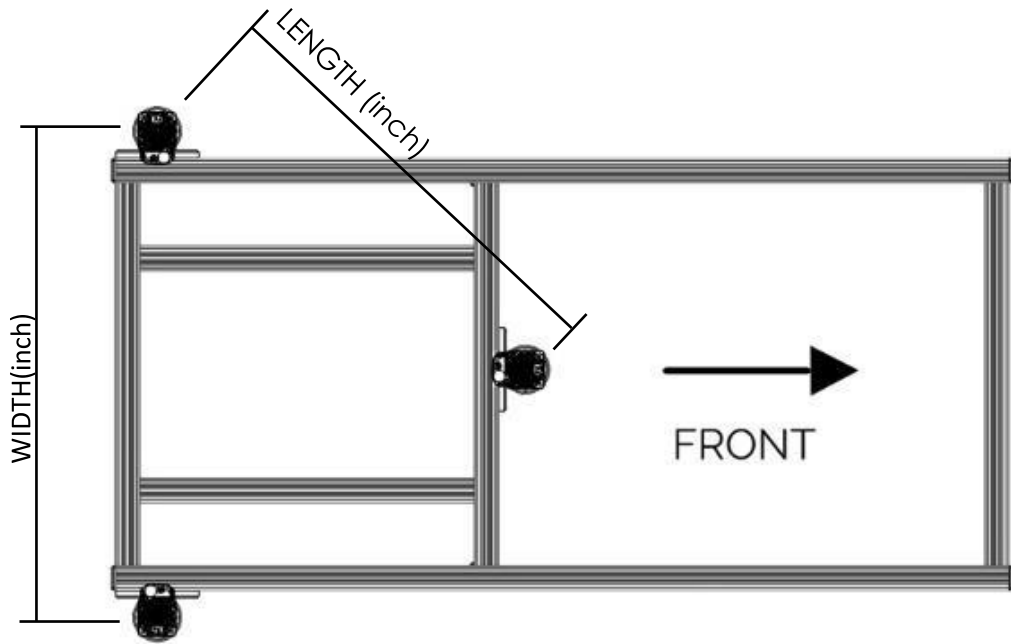
Typical aluminum extrusion and nut system

3. With your chassis supported, align the holes in the mounting bracket with the four t-slot nuts. Attach the bracket and actuator to your chassis with the included M8 screws using a 5mm hex key. You may wish to apply some of the included medium strength thread locker to these screws. Torque to 180 in-lb (15 ft-lb, 20.3 N-m).

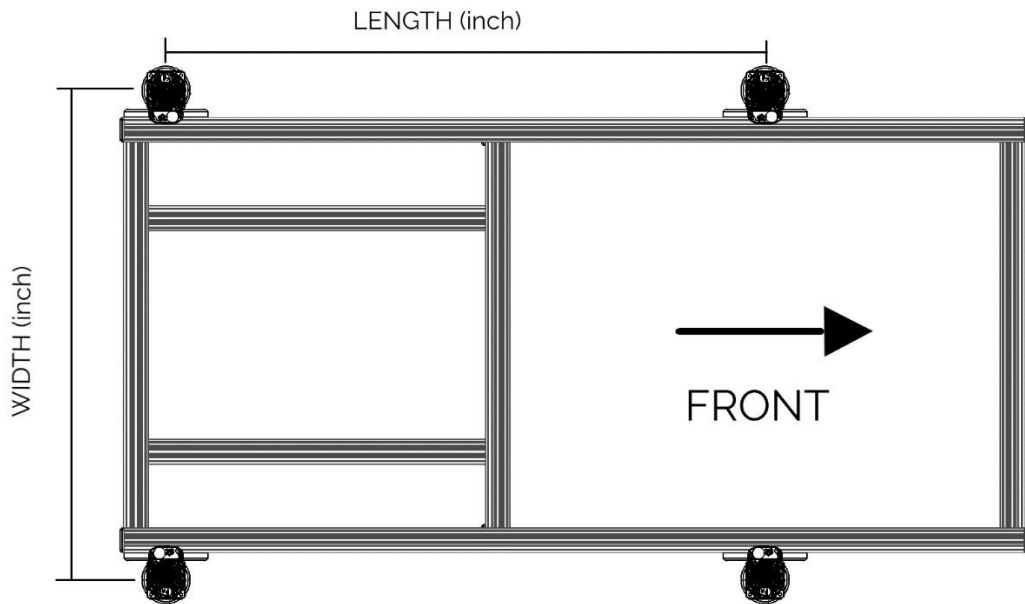



DK2 shown in illustration, other DK products similar

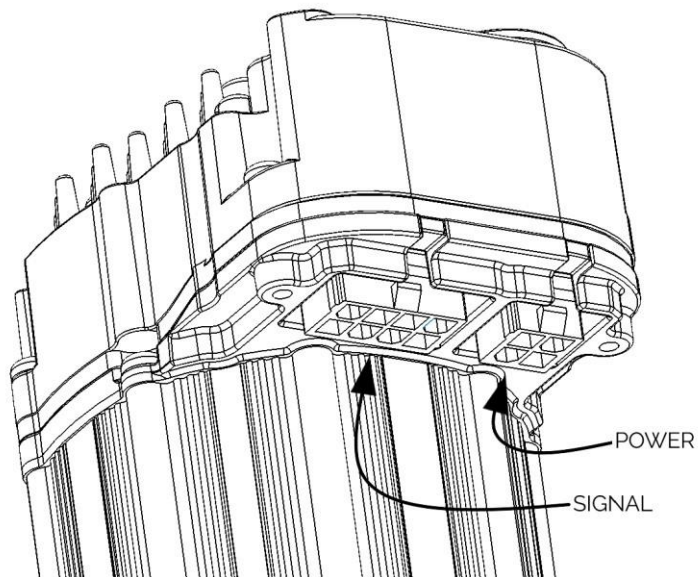
4. For 3-actuator systems, install 1 actuator at the front and 2 at the back. It is recommended to position the actuators around the driver seat for best weight distribution and performance.

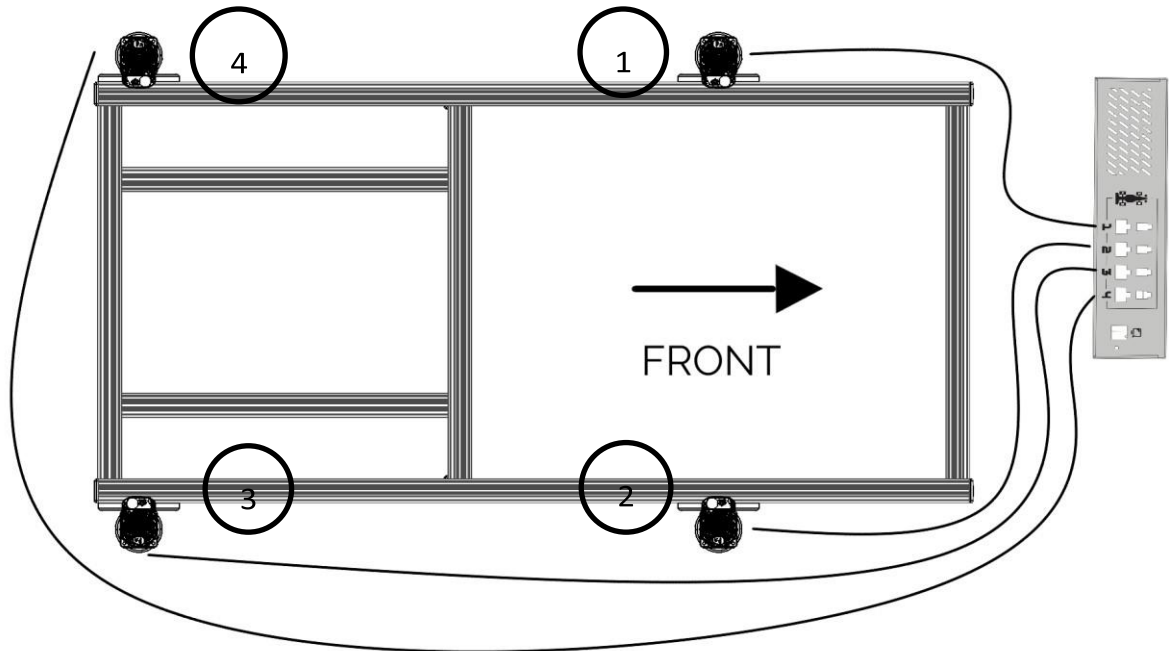



5. For 4-actuator systems, it is recommended to position the rear actuators at the very back of the simulator, then position the front actuators as far back as possible without upsetting the balance of the simulator. This ensures the best possible weight distribution and performance.



6.  With a tape measure, record the Length and Width (center-to-center) distances as indicated above. These measurements are to be entered in the Sigma Simulation software.
7. Connect the power and signal cables to the motors. Route the cables so they are strain relieved, and are clear from possible pinch hazard areas. Connect the cables to the DK controller as shown below:





8. Attach the included power cable to the back of the DK controller. Place the DK controller on the floor. You may install the DK controller on the motion simulator, placing it off the rig is recommended.
9. Connect the included Ethernet cable from the controller box to your PC's network port. If a network port is not available, you may add a PCI network card to your PC or to simply use a USB to Ethernet adapter (as recommended on www.sigmai.co).
10. When ready, plug the power cable into the wall electrical outlet. Ensure  the AC voltage supply matches the DK controller (95-125VAC, 190-250VAC).
11. Follow the software installation instructions in the next section.

[Software Installation Configuration]

Follow the instructions documented at:

<https://www.sigmaintegrale.com/pages/software-installation-1>

[Motion Layers Defined]

Detailed explanation of motion layers and tuning can be found at:

<https://www.sigmaintegrale.com/pages/motion-layers-explained>

[Corner-Balancing the DK2 Simulator]

The motion simulator will settle in its position after 1 or 2 days. It is highly recommended to corner balance the DK motion system to maximize its performance and longevity. Follow the instructions documented at:

<https://www.sigmaintegrale.com/pages/corner-balancing-a-motion-simulator>