# Viper S650 Workcell User Manual

## Overview

The Adept Ace Custom API allows the user to control the Adept Viper S650 by remotely connecting to the Adept ACE application through the Adept ACE server. The purpose of this custom API is to be the interface between Adept ACE and LabVIEW.

This user manual is a guide outlining the API endpoints to control the Adept Viper S650 robot and how to access these endpoints.

## System Information

The purpose of the InfoAPI endpoint is to handle all GET requests concerning the current status of the system. Status information the Info API provides are

Returns: `{"ace_server_url": String, "ace_server_por": Integer, "api_server_url": String, "api_server_port": Integer, "controller": String, "robot": String, "robot_busy": Boolean, "robot_joints": [Joint 1, Joint 2, ..., Joint n]}`

### Accessing the endpoint

Send a GET request to: `http://localhost:9001/api/system/info` .

## Robot Joint Information

Returns the current joint positions of the robot.

Returns: `{"robot_joints": [Joint 1, Joint 2, ..., Joint n]}`

### Accessing the endpoint

Send a GET request to: `http://localhost:9001/api/system/robot/joints` .

## Robot Busy Information

Specfies whether the robot is currently busy performing an action or not.

Returns: `{"robot_busy": boolean}`

### Accessing the endpoint

Send a GET request to: `http://localhost:9001/api/system/robot/busy` .

## Joint Move

The Joint Move endpoint handles the `JointMove` Adept Ace command. The `JointMove` command moves the Viper robot according to its six joints.The purpose this endpoint serves is to submit POST requests containing details about the robot joint position to the Adept ACE server. GET requests are not supported by this endpoint.

### Accessing the Joint Move API Endpoint

After connecting to the Ace server, the joint move API can be accessed through `http://localhost:9001/api/move/joints` . Requests in JSON format can be sent with locations for each joint. `"JointPosition"` is an array of six numbers, each corresponding to a joint on the robot. An example of a JSON command:

```
{ 'Accel': 100, 'Decel': 100, 'Speed': 10, 'StraightMotion': true, 'MotionEnd': 'Blend', 'SCurveProfile': 0, "JointPosition":[85, -45, 136, 88, -5, 22]}
```

## Cartesian Move

The Cartesian Move endpoint handles the `CartesianMove` Adept Ace command. A Cartesian Move is a motion where the robot's position corresponds to the x, y, and z axes. The purpose of this endpoint is to submit POST requests with details about the robot's coordinates to the Adept ACE server. GET requests are not supported by this endpoint.

### Accessing the Cartesian Move API

The Cartesian Move API endpoint can be accessed through `http://localhost:9001/api/move/cartesian` . Requests are sent using a JSON command.

An example:

```
{ 'Accel': 100, 'Decel': 100, 'Speed': 10, 'StraightMotion': true, 'MotionEnd': 'Blend', 'SCurveProfile': 0, 'X': 10, 'Y': 10, 'Z': 0, 'Yaw': 0,
 'Pitch': 0, 'Roll': 0}"
```