

F3 Microplate Mover



Manufacturer: CRS
 Model Number: CRS-F3
 Web Address: www.crsrobotics.com

F3 is a robust mover with an articulated wrist joint that adds the ability to re-orient plates. The F3 also offers a linear track option for tending multiple instruments. F3 is well suited for transferring plates between such single-plate and multi-plate lab instruments as Readers, Shakers, Delidder Stations, Liquid Handlers, Incubators, and Washers.

Robotic Arm: Commands

▶ **About()** - Retrieves the robotic arm information.

▶ **GripperClose(servoForce)** - Closes the gripper fingers.

servoForce	Float	The percentage of the force applied when using a servo gripper. Range of values: 1 to 100.
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▶ **GripperOpen(servoForce)** - Opens the gripper fingers.

servoForce	Float	The percentage of the force applied when using a servo gripper. Range of values: 1 to 100.
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▶ **GripperFinish()** - Waits until the gripper fingers have finished moving.

▶ **GripperStop()** - Stops the gripper finger motion.

▶ **GetGripperDistance()** - Retrieves the servo gripper finger distance.

▶ **SetGripperDistance(distance)** - Sets the servo gripper finger opening distance.

distance	Float	Specifies in configured linear units the gripper fingers opening distance, ranging from 0 (fingers closed) to the maximum distance the fingers can open.
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▶ **Home()** - Homes all the axes in the numerical order, starting with axis one.

▶ **Ready()** - Moves the robotic arm to the ready position.

▶ **SetBlendMotion(enabled)** - Sets the motion blending mode.

enabled	Boolean	Indicates the motion blending mode. True : enables the motion blending. False: disables the motion blending.
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▶ **SetLinearBlendRadius(radius)** - Sets the radius for blending segments of straight-line motion.

radius	Float	Specifies the radius for blending segments (default is 50.8mm).
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▶ **SetRotationalBlendRadius(radius)** - Sets the radius for blending between arcs of joint-interpolated motion.

radius	Float	Specifies the radius for blending between arcs (default is
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20.0 degrees).

▶ **SetMaxAgeInQueue(time)** - Sets the maximum time the first motion command waits in the motion queue before the motion engine starts planning how to blend it with the other command in the queue.

time	Integer	Specifies the maximum time in milliseconds. Increasing this value may give smoother, better blended motion.
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▶ **JogWorld(axis, distance)** - Moves the tool center point (TCP) along or around the specified axis in the world coordinate system using joint-interpolated motion. This command is asynchronous, i.e. it returns as soon as the command is sent to the robotic arm.

axis	Integer	Specifies the axis for the move. 1 - along X axis, 2 - along Y axis, 3 - along Z axis, 4 - around X axis, 5 - around Y axis, 6 - around Z axis. Range of values: 1 to 6.
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distance	Float	Distance of motion along the axis (in linear units) or around the axis (in degrees).
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▶ **JogWorldStraight(axis, distance)** - Moves the tool center point (TCP) along or around the specified axis in the world coordinate system using straight-line motion. This command is asynchronous, i.e. it returns as soon as the command is sent to the robotic arm.

axis	Integer	Specifies the axis for the move. 1 - along X axis, 2 - along Y axis, 3 - along Z axis, 4 - around X axis, 5 - around Y axis, 6 - around Z axis. Range of values: 1 to 6.
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distance	Float	Distance of motion along the axis (in linear units) or around the axis (in degrees).
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▶ **Motor(motor, pulses)** - Moves the specified motor by the specified number of motor pulses.

motor	Integer	Specifies the motor for the move. Range of values: 1 to 8.
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pulses	Integer	Motor pulses for the motion.
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▶ **Joint(joint, distance)** - Moves the specified joint by the specified number of units.

joint	Integer	Specifies the joint for the move. Range of values: 1 to 8.
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distance	Float	Extent of motion along the joint (in linear units) or around the joint (in degrees).
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▶ **Limp()** - Disengages the servro control of all motors.

▶ **NoLimp()** - Re-engages the servro control of all motors.

▶ **Finish()** - Waits for the arm to finish moving.

▶ **SetSpeed(speed)** - Set the robotic arm speed as percentage.

speed	Integer	Percentage value for the arm speed. Range of values: 1 to 100.
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▶ **IsHomed()** - Verifies if the robotic arm is homed.

▶ **IsPowered()** - Verifies if the robot is powered.

▶ **Output(outputNumber, outputValue)** - Turns on the specified output on the CRS robotic PLC controller.

outputNumber	Integer	Specifies the PCL output number. Range of values: 1 to 16.
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outputValue	Boolean	Specifies the ouput boolean value.
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▶ **Input(inputNumber)** - Reads the specified input from the CRS PLC controller.

inputNumber	Integer	Specifies the PCL input number. Range of values: 1 to 16.
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▶ **MoveAbsolute(x, y, z, rx, ry, rz)** - Moves the robot arm to an absolute location on the workspace.

x	Float	The absolute x-coordinate
y	Float	The absolute y-coordinate
z	Float	The absolute z-coordinate
rx	Float	The absolute angle along the x-axis
ry	Float	The absolute angle along the y-axis
rz	Float	The absolute angle along the z-axis

▶ **MoveAbsoluteWithRail(x, y, z, rx, ry, rz, rail)** - Moves the robot arm and rail to an absolute location on the workspace.

x	Float	The absolute x-coordinate
y	Float	The absolute y-coordinate
z	Float	The absolute z-coordinate
rx	Float	The absolute angle along the x-axis
ry	Float	The absolute angle along the y-axis
rz	Float	The absolute angle along the z-axis
rail	Float	The absolute rail coordinate

▶ **MoveAbsoluteStraight(x, y, z, rx, ry, rz)** - Moves the robot arm to an absolute location on the workspace using straight-line motion.

x	Float	The absolute x-coordinate
y	Float	The absolute y-coordinate
z	Float	The absolute z-coordinate
rx	Float	The absolute angle along the x-axis
ry	Float	The absolute angle along the y-axis
rz	Float	The absolute angle along the z-axis

▶ **MoveAbsoluteStraightWithRail(x, y, z, rx, ry, rz, rail)** - Moves the robot arm and rail to an absolute location on the workspace using straight-line motion.

x	Float	The absolute x-coordinate
y	Float	The absolute y-coordinate
z	Float	The absolute z-coordinate
rx	Float	The absolute angle along the x-axis
ry	Float	The absolute angle along the y-axis
rz	Float	The absolute angle along the z-axis
rail	Float	The absolute rail coordinate

▶ **MoveRelative(x, y, z, rx, ry, rz)** - Moves the robot arm relative to the current location.

x	Float	The relative x-coordinate
y	Float	The relative y-coordinate
z	Float	The relative z-coordinate
rx	Float	The relative angle along the x-axis
ry	Float	The relative angle along the y-axis
rz	Float	The relative angle along the z-axis

▶ **MoveRelativeWithRail(x, y, z, rx, ry, rz, rail)** - Moves the robot arm and rail relative to the current location.

x	Float	The relative x-coordinate
y	Float	The relative y-coordinate
z	Float	The relative z-coordinate
rx	Float	The relative angle along the x-axis
ry	Float	The relative angle along the y-axis
rz	Float	The relative angle along the z-axis
rail	Float	The relative rail coordinate

▶ **GetMotors()** - Returns the current position of the arm in motor pulses.

▶ **GetJoint(joint)** - Returns the current position of the specified joint of the arm in joint coordinates.

joint	Integer	Specifies the joint. Range of values: 1 to 8.
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▶ **GetJoints()** - Returns the current position of the arm in joint coordinates.

▶ **GetPoint()** - Returns the current position of the arm in cartesian coordinates.

▶ **GetError()** - Retrieves the latest asynchronous error from the C500C controller.

▶ **Abort()** - Halts the robot motion and signals the controlling process.

▶ **ClearAbort()** - Clears the errors on the controller enabling the controlling process to issue motion commands.

▶ **ClearError()** - Clears persistent error bits on the C500C controller, including runaways, collisions, overspeeds, encoder faults to re-engage the arm.

Catalyst Error

🔥 **Error(description)** - Error occurred during command execution.

description	String	Error description.
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