

PerkinElmer PlateTrak



Manufacturer: PerkinElmer Life Sciences
Model Number: PlateTrak
Web Address: www.perkinelmer.com

The PlateTrak is a robotic liquid handling system designed for high throughput screening and other drug discovery and biomolecular applications. The system provides automation of microplate applications in pharmaceutical, biotech, clinical research and manufacturing processes. The system is fully customizable, and can include from four to sixteen user-selectable modules using a broad array of additional lab instrumentation. PlateTrak Systems offer tremendous speed and efficiency, and have proven to be tremendous workhorses in both small and large scale scientific labs.

Liquid Handling System: Commands

▶ **DIn(deviceType, inputNum)** - Reads a discrete IO point from the PLC.

deviceType	String	Device type: M for internal relay, X for input, Y for output.
inputNum	Integer	Input number in the machine.

▶ **DOut(deviceType, outputNum, state)** - Sets a discrete IO point in the PLC.

deviceType	String	Device type: M for internal relay, X for input, Y for output.
outputNum	Integer	Output number in the machine.
state	Boolean	True=sets output to 1, False=sets output to 0.

▶ **INITS(id)** - Initializes the stack motor.

id	Integer	Station identifier. Range of values: 1 to 4.
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▶ **STACK(id, action)** - Sets stacker action.

id	Integer	Station identifier. Range of values: 1 to 4.
action	Boolean	True=upstack, False=downstack.

▶ **FASTFWD()** - Similar to Shift Right, but shifts all the plates to the right at once.

▶ **FASTREV()** - Similar to Shift Left, but shifts all the plates to the left at once.

▶ **JUMP(source, destination)** - Moves the plate from the source station to the destination station without stopping in between at any other station. An error will be generated if there is no plate at the source, if a plate is already occupying the destination and/or if any plates exist between the source and destination. Station numbers start at 1 and increment from left to right if the machine is viewed from the front.

source	Integer	Source station number. Range of values: 1 to 13 .
destination	Integer	Destination station number. Range of values: -1 to 14 .

▶ **XYZASP(id, rackname, performanceTable, location, quad, zCoord, volume, zTravel)** - Aspirates based on the parameters specified.

id	Integer	Station identifier. Range of values: 1 to 3 .
rackname	String	Labware as defined by the user.
performanceTable	String	Name of the performance table database as defined by the user.
location	Integer	Grid location as defined in the grid coordinates table. Range of values: 1 to 25 .
quad	Integer	Plate quad based on labware and head type being used. Range of values: 0 to 16 .
zCoord	Integer	Z position for the aspirate action (measured from plate deck). Range of values: -30 to 120 .
volume	Integer	Volume to aspirate. Range of values: 0 to 270 .
zTravel	Integer	The height which Z will travel after it is done aspirating (measured from plate deck). Range of values: 0 to 120 .

▶ **XYZDISP(id, rackname, performanceTable, location, quad, zCoord, volume, zTravel)** - Dispenses based on the parameters specified.

id	Integer	Station identifier. Range of values: 1 to 3 .
rackname	String	Labware as defined by the user.
performanceTable	String	Name of the performance table database as defined by the user.
location	Integer	Grid location as defined in the grid coordinates table. Range of values: 1 to 25 .
quad	Integer	Plate quad based on labware and head type being used. Range of values: 0 to 16 .
zCoord	Integer	Z position for the dispense action (measured from plate deck). Range of values: -30 to 120 .
volume	Integer	Volume to dispense. Range of values: 0 to 270 .
zTravel	Integer	The height which Z will travel after it is done dispensing (measured from plate deck). Range of values: 0 to 120 .

▶ **XYZEMPTYD(id)** - Empties dispense motor for the XYZD station. Homes the D motor from the current Z position.

id	Integer	Station identifier.
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▶ **XYZHOMEX(id)** - Homes the X motor for the XYZD station.

id	Integer	Station identifier.
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▶ **XYZHOMEY(id)** - Homes the Y motor for the XYZD station.

id	Integer	Station identifier.
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▶ **XYZHOMEZ(id)** - Homes the Z motor for the XYZD station.

id	Integer	Station identifier.
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▶ **XYZMOVEX(id, destination, speed)** - Moves X motor to an absolute position with respect to home position at the specified speed.

id	Integer	Station identifier.
destination	Integer	Absolute X position to move to in mm. Range of values: 0 to 600 .
speed	Integer	Speed for the X motor in mm/s. Range of values: 3 to 400 .

▶ **XYZMOVEY(id, destination, speed)** - Moves Y motor to an absolute position with respect to home position at the specified speed.

id	Integer	Station identifier.
destination	Integer	Absolute Y position to move to in mm. Range of values: 0 to 400 .
speed	Integer	Speed for the Y motor in mm/s. Range of values: 3 to 400 .

▶ **XYZMOVEZ(id, destination, speed)** - Moves Z motor to an absolute position with respect to home position at the specified speed.

id	Integer	Station identifier.
destination	Integer	Absolute Z position to move to in mm. Range of values: 0 to 130 .
speed	Integer	Speed for the Z motor in mm/s. Range of values: 2 to 160 .

▶ **XYZMOVEXY(id, xCoord, yCoord)** - Moves X and Y simultaneously to an absolute position with respect to home position at the current speed.

id	Integer	Station identifier.
xCoord	Integer	Absolute X position to move to in mm. Range of values: 0 to 600 .
yCoord	Integer	Absolute Y position to move to in mm. Range of values: 0 to 400 .

▶ **XYZMOVED(id, relDest, speed)** - Moves D motor relative to the current position at the specified speed.

id	Integer	Station identifier.
relDest	Integer	Relative D position to move. Range of values: -220 to 220 .
speed	Integer	D motor speed in mm/s. Range of values: 1 to 250 .

▶ **XYZMOVETOGRID(id, location)** - Moves XYZ dispense head to specific grid location.

id	Integer	Station identifier.
location	Integer	Grid location as defined in the grid coordinates table. Range of values: 1 to 25 .

▶ **XYZSETSPEED(id, xSpeed, ySpeed, zSpeed)** - Set the X, Y and Z motor speeds.

id	Integer	Station identifier.
xSpeed	Integer	Speed for the X motor in mm/s. This speed will be in effect until next time that it is changed. Range of values: 10 to 400 .
ySpeed	Integer	Speed for the Y motor in mm/s. This speed will be in effect until next time that it is changed. Range of values: 10 to 400 .
zSpeed	Integer	Speed for the Z motor in mm/s. This speed will be in effect until next time that it is changed. Range of values: 2 to 160 .

▶ **XYZTIPLOAD(id, location, action)** - Automatically loads/uploads tips.

id	Integer	Station identifier.
location	Integer	Grid location as defined in the grid coordinates table. Range of values: 1 to 30 .
action	Boolean	True=Load tips, False=Unload tips.

▶ **XYZINIT(id)** - Homes the X, Y, Z motors for the XYZD station.

id	Integer	Station identifier.
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▶ **XYZHOMEG(id)** - Homes the gripper motor.

id	Integer	Station identifier.
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▶ **XYZMOVEG(id, position, gSpeed)** - Moves the gripper motor at the specified speed.

id	Integer	Station identifier.
position	Integer	Distance for gripper to move. Range of values: 0 to 400 .
gSpeed	Integer	Gripper motor speed. Range of values: 10 to 100 .

▶ **XYZMOVEPLATE(id, sourceLocation, zSourceOffset, destLocation, zDestOffset, zTravel)** - Automatically moves a plate from one location to another.

id	Integer	Station identifier.
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sourceLocation	Integer	Source grid location as defined in the grid coordinates table. Range of values: 0 to 25 .
zSourceOffset	Integer	Z-Motor offset at source grid location. Range of values: 0 to 300 .
destLocation	Integer	Destination grid location as defined in the grid coordinates table. Range of values: 0 to 25 .
zDestOffset	Integer	Z-Motor offset at destination grid location. Range of values: 0 to 300 .
zTravel	Integer	Distance for Z motor to travel. Range of values: 0 to 300 .

▶ **INITW(id)** - Initializes a motor wash station. i.e. homes the Z motor.

id	Integer	Station identifier.
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▶ **MOVEW(id, dispHeight, wSpeed)** - Moves washer motor to the specified dispense height.

id	Integer	Station identifier.
dispHeight	Integer	Height the wash dispense should occur. Range of values: 0 to 220 .
wSpeed	Integer	Wash motor speed. This speed will be in effect until next time that it is changed. Range of values: 1 to 250 .

▶ **WASH(id, quad, washType, aspTime, dispTime, soakTime, finalAsp, aspHeight, dispHeight, numCycles, travelHeight)** - Performs wash operation, for machines which have a 5 position wash station.

id	Integer	Station identifier.
quad	Integer	Plate quad based on labware and head type being used. Range of values: 0 to 4 .
washType	Boolean	True=overflow, False=cycle.
aspTime	Integer	Aspirate time in seconds. Range of values: 0 to 180 .
dispTime	Integer	Dispense time in seconds. Range of values: 0 to 180 .
soakTime	Integer	Soak time in seconds. Range of values: 0 to 180 .
finalAsp	Boolean	True=Yes, False=No.
aspHeight	Integer	Aspirate height in mm. Range of values: 0 to 90 .
dispHeight	Integer	Dispense height in mm. Range of values: 0 to 90 .
numCycles	Integer	Number of cycles. Range of values: 1 to 999 .
travelHeight	Integer	The height which Z will travel after it is done washing (in mm). Range of values: 0 to 90 .

Liquid Handling System: Errors

 **Error(number)** - Fatal or non-fatal PlateTrak error has occurred.

number	Integer	Number of the error.
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