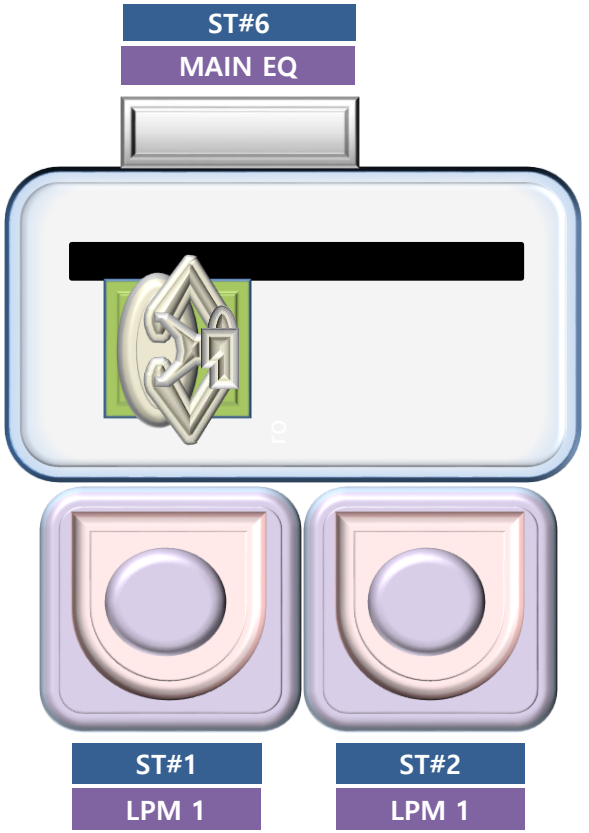
CYMECHS

# ATM(Vacuum Type) Teaching SOP

2024. 03. 11

*"세상을 바꾸는 기술과 함께 합니다."*

## EFEM Station

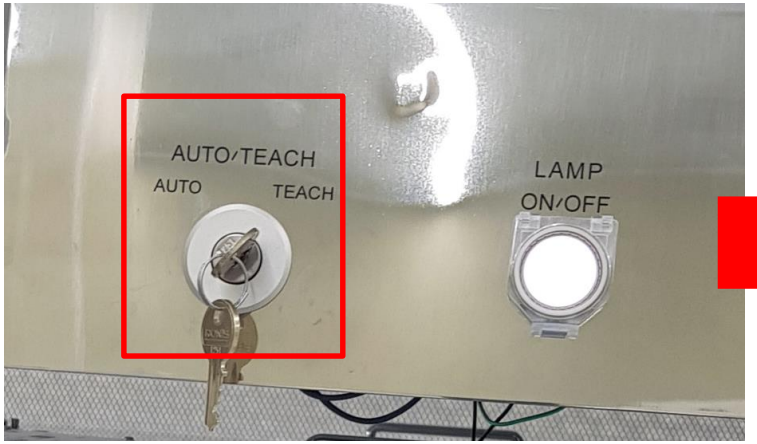



**<ASM W2iP WTR 400mm Station Define>**

1. Before starting teaching, check the teaching station information about the equipment. Station numbers are defined by agreement in advance for each company.
2. The teaching sequence basically proceeds in the order in which the process progresses.LPM → MAIN EQ

# ▣ ATM Teaching

## ➧ATM Robot T/P Operation : Auto/Manual Change




<EFEM Auto/Teach Key Switch>


<ATM Teaching Pendant – Auto Mode>

1. EFME Auto/Teach Key switch change
Auto ➔ Teach: T/P Mode can be changed to Manual
Teach ➔ Auto: T/P Mode can be changed to Auto

2. Push the Op Mode button on the Teach pendant's STATUS – ROBOT screen.

# ▣ ATM Teaching

## ➧ATM Robot T/P Operation : Change Auto/Manual

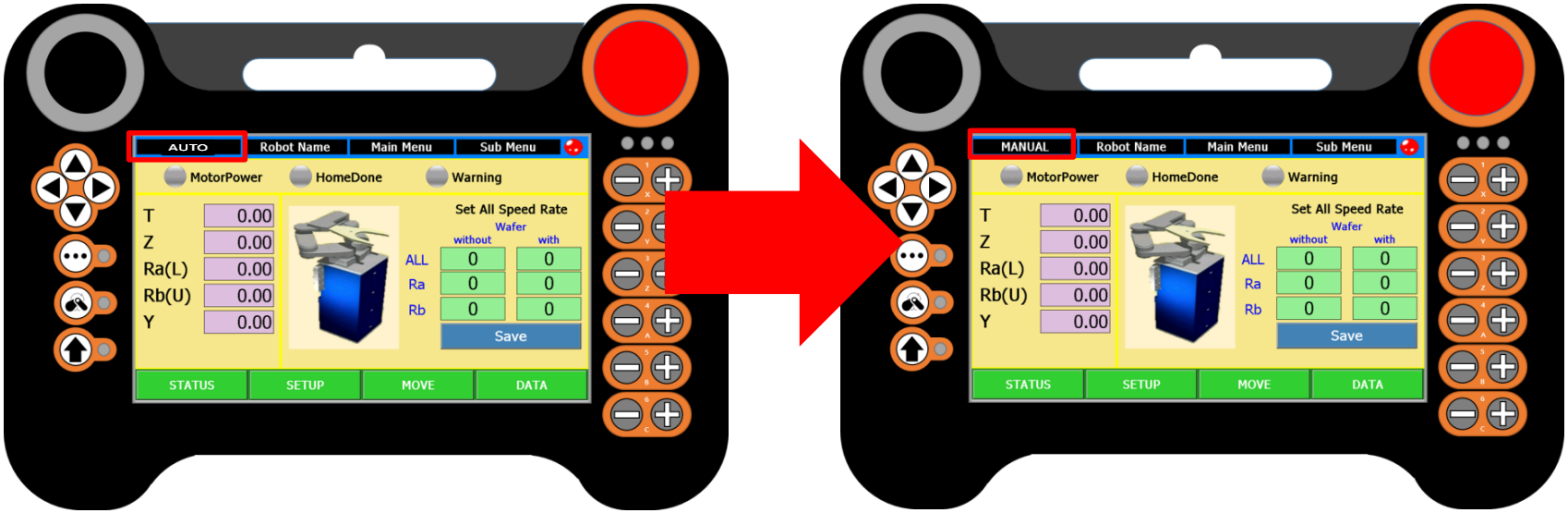

<ATM Teaching Pendant – Operation Mode Popup>

3. Operation Mode window pops up, Manual button Touch (Auto → Manual: During Teaching)


<ATM Teaching Pendant – Password Popup>

4. Password input window is PopupPassword Touch
   ①Touch 261312 in order
   ② Displays the entered password

## ATM Robot T/P Operation : Auto/Manual Change




**<ATM Teaching Pendant – Auto/Manual >**

1~4. Teaching Pendant status changes after execution (Change from Auto to Manual)(If it is necessary to change to Auto, change the Key Switch to Auto, select Auto in the T/P Operation Popup, and proceed with steps 1 to 4.)

# ▣ ATM Teaching

## Home Screen Change


**<ATM Teaching Pendant – Robot >**


**<ATM Teaching Pendant – Move Popup >**

1. **MOVE** Touch at the bottom of T/P Screen

2. Touch **HOME** in the **MOVE** Popup window

## MOVE - HOME

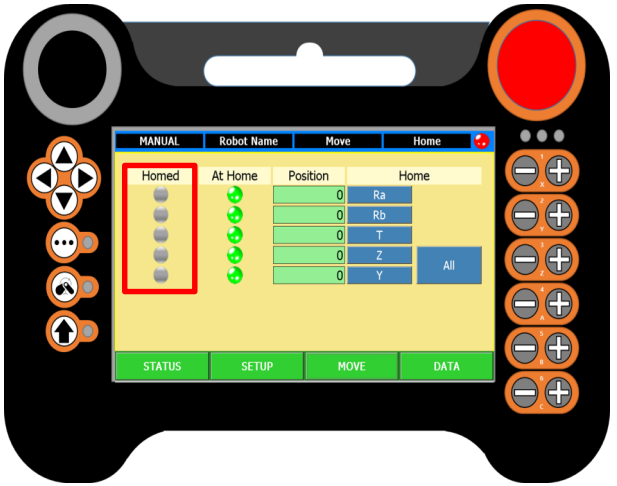

<ATM Teaching Pendant – Home >

① Homed: Indicates whether the Home operation of the corresponding axis has been performed.
② At Home: The LED turns on when the current location is at the Home position.
③ Position: Displays the current position of each axis.
④ Home Button: Execute the Home command for each axis. Additionally, the [Home All] operation home all arms at the same time and then moves the T-axis, Z-axis, and Y-axis to the home position at the same time.

# ▣ ATM Teaching

## MOVE - HOME


<ATM Teaching Pendant – BackSide>





<ATM Teaching Pendant – Home >

1. Press the Liveman Switch on the back of the ATM. (The Liveman Switch is pressed in 2nd gear, and when you release the Liveman Switch in Manual or press it in 2nd gear, the Robot Servo turns off.)
2. Touch the Home All button.
3. Press and hold the Liveman Switch while the robot is running.
4. When the operation is completed, Homed IO turns on.

# ▣ ATM Teaching

## Jog Screen Change


**<ATM Teaching Pendant – Robot >**

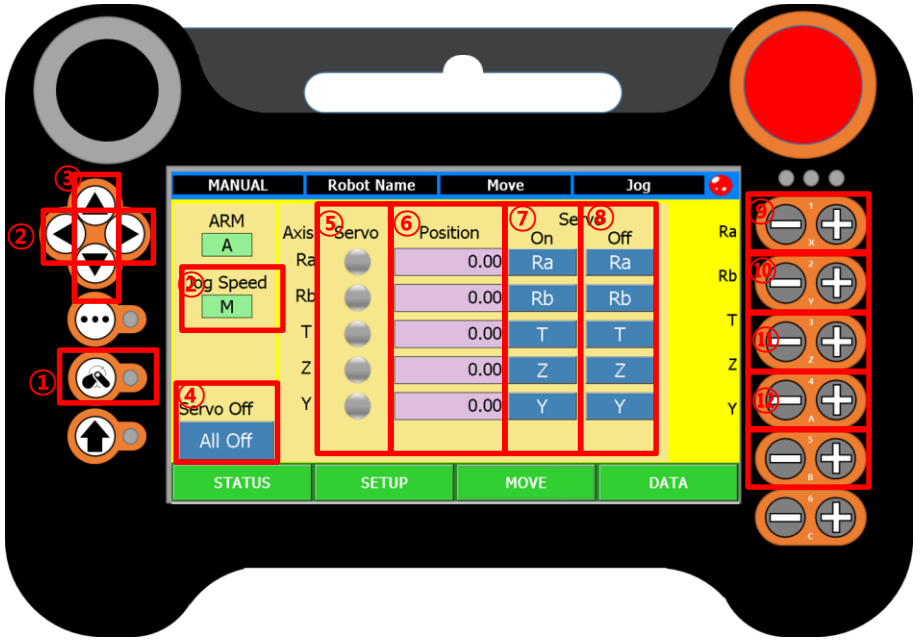
1. **MOVE** Touch at the bottom of T/P Screen


**<ATM Teaching Pendant – Move Popup >**

2. Touch **JOG** in the **MOVE** Popup window

# ▣ ATM Teaching

## Move - JOG




**<ATM Teaching Pendant – JOG >**

① **Servo On**: Turn on the servos of all motors.

② **Jog Speed**: Each time you press it, the preset Jog Speed H, M, and L change in turns. It is the same function as Jog Speed on the screen and can be changed by touching the screen.

③ **Servo Off**: Turn off the servos of all motors.

④ **Servo On/Off Led**: Displays the current Servo On/Off status of each axis.

⑤ **Position**: Displays the current position of each axis.

⑥ **Servo On**: Servo can be turned on independently for each axis.

⑦ **Servo Off**: Servo can be turned off independently for each axis.

⑧ **RA -+** : Jog operation of the RA axis is possible, and + extends during operation and - retracts during operation.

⑨ **RB -+** : Jog operation of the RA axis is possible, and + extends during operation and - retracts during operation.

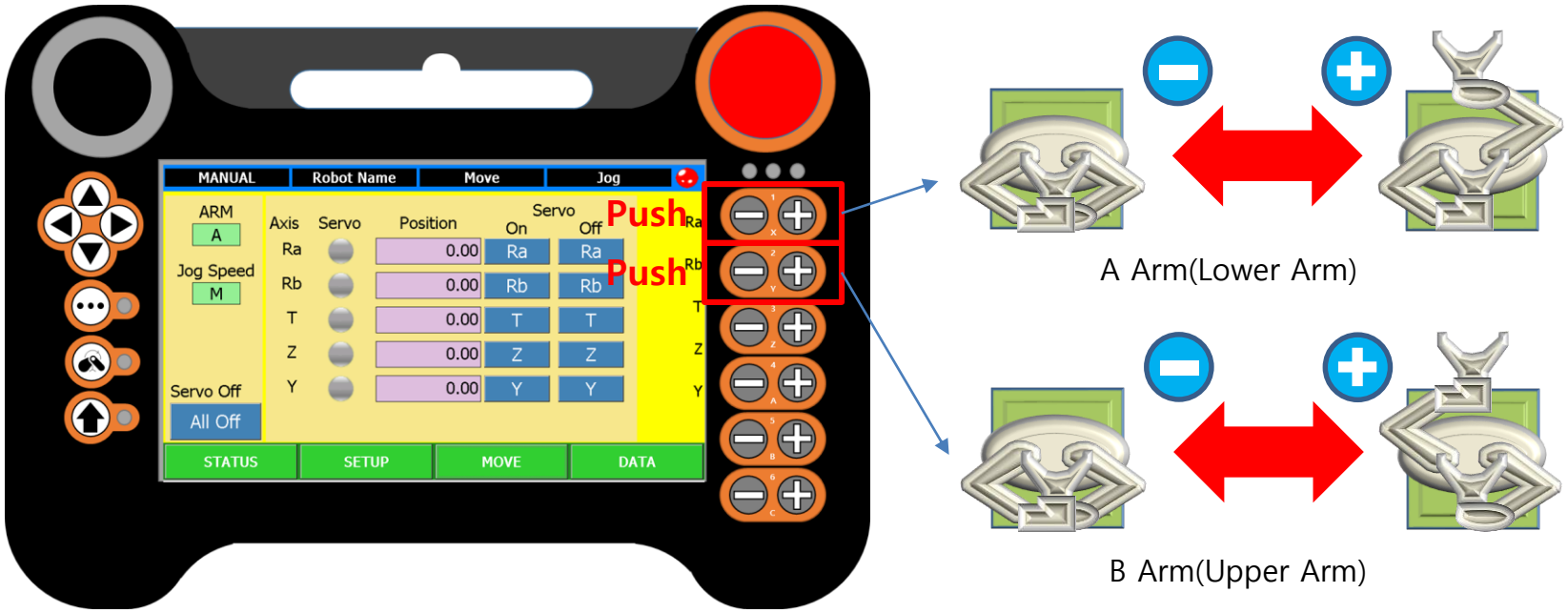
⑩ **T -+ :** Jog operation of the T axis is possible, and it rotates + clockwise (CW) when operating - counterclockwise (CCW) when operating**.**

⑪ **Z -+** : Jog movement of the Z axis is possible, and moves in the Up direction when operating + and Down direction when operating -.

⑫ **Y -+** : Y jog operation is possible, and moves to the right side of the linear when operating +, and to the left side of the linear when operating -.

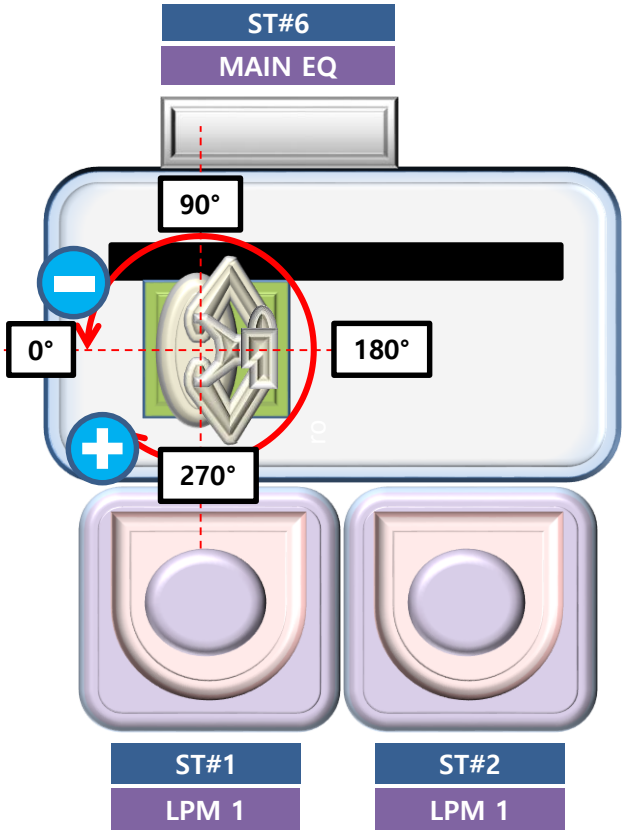
# ▣ ATM Teaching

## Jog-R Motion(A/B Arm)



# ▣ ATM Teaching

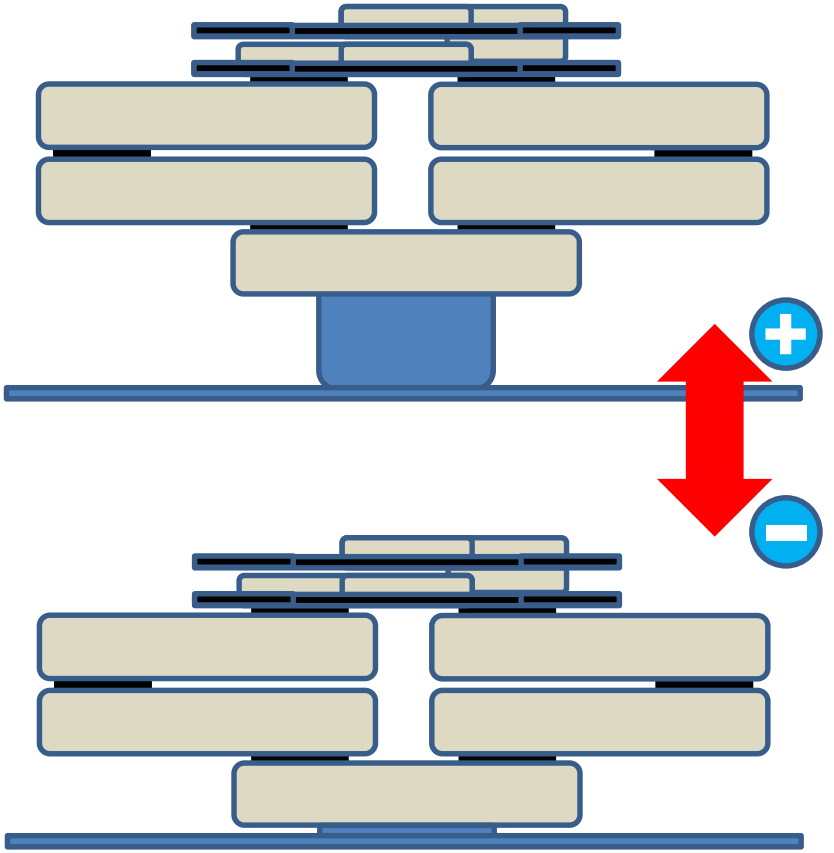
## Jog-T Motion


**T Axis Moving range : 0 ~ 340°**

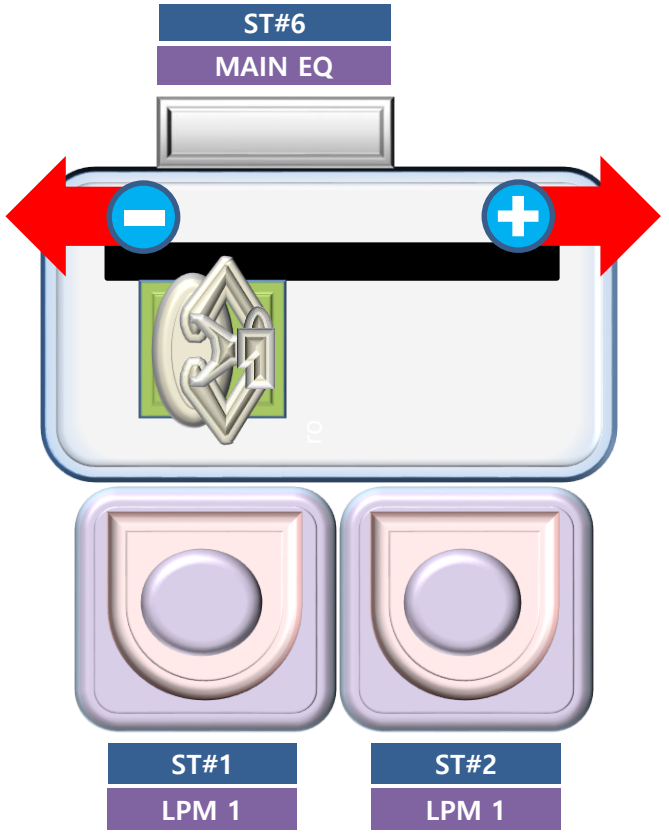
# ▣ ATM Teaching

## Jog-Z Motion

# ▣ ATM Teaching

## Jog-Y Motion

# ▣ ATM Teaching

## Manual Screen Change


**<ATM Teaching Pendant – Robot >**

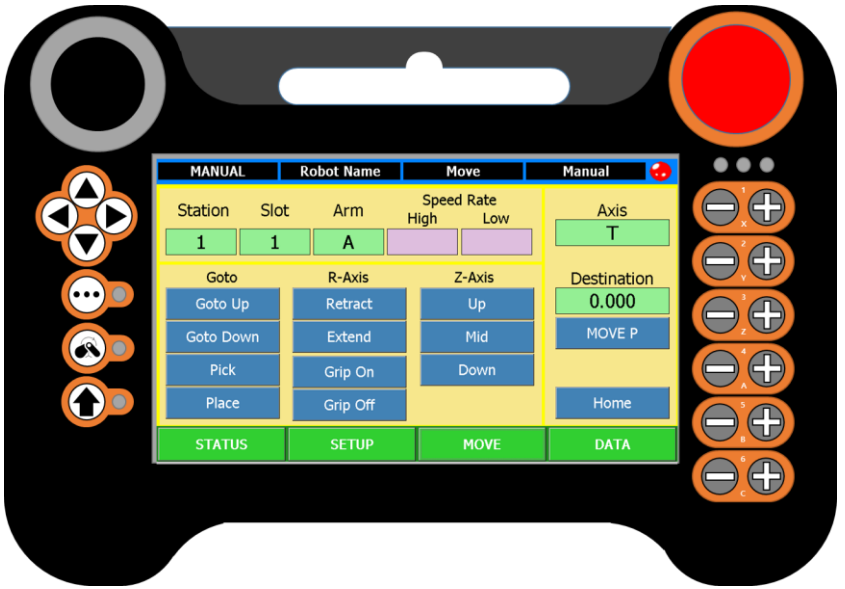
1. **MOVE** Touch at the bottom of T/P Screen


**<ATM Teaching Pendant – Move Popup >**

2. Touch **MANUAL** in the **MOVE** Popup window

# ▣ ATM Teaching

## Move - Manual




**<ATM Teaching Pendant – MANUAL >**

① **Station**: Enter station information.
**Slot**: Enter Slot information.
**Arm**: Enter information on the standard arm to be operated.
**Speed Rate**: Speed Rate can be set on the Speed screen and can simply be checked here.

② **Goto**: Move to the set station and the arm is in retract state.
**Retract**: The selected arm is retracted.
**Extend**: The selected arm extends to the taught position.
**Up**: The Z axis moves to the taught Up Position.
**Mid**: The Z axis moves to the taught Middle Position.
**Down**: The Z axis moves to the taught Down Position.
**Grip :** Turn On Vacuum valve.
**UnGrip :** Turn Off Vacuum vlave.

③ **Pick**: Pick operates at the location corresponding to the Station, Slot, and Arm information displayed on the screen.
**Place:** Place operates to the location corresponding to the Station, Slot, and Arm information displayed on the screen.

④ **Axis**: The user specifies the axis and selects the axis to move to the desired position.
**Destination**: Set the distance to move the specified axis.
**Move P**: The axis set moves by the distance set in Destination.
**Move H**: The set axis moves to the Home position.

# ▣ ATM Teaching

## Teach Screen Change


**<ATM Teaching Pendant – Robot >**

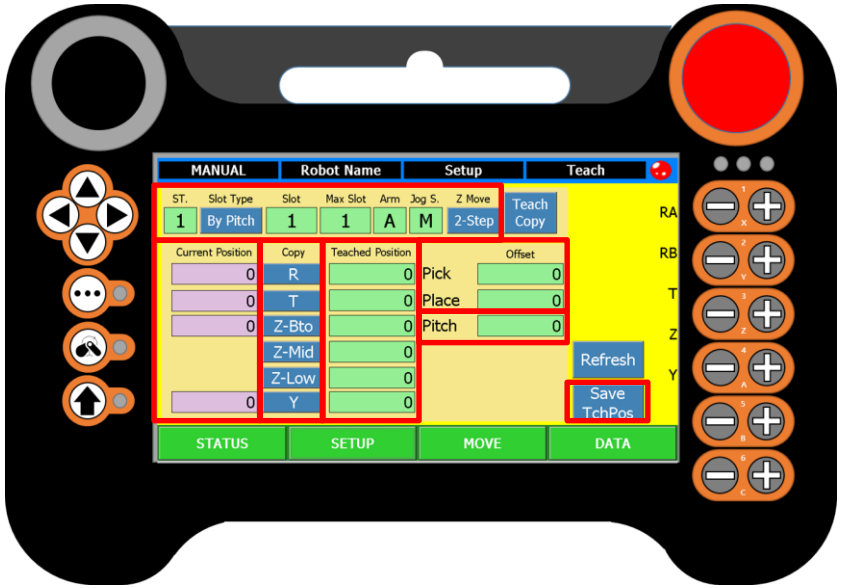
1. **SETUP** Touch at the bottom of T/P Screen


**<ATM Teaching Pendant – Move Popup >**

2. Touch **Teach** in the **SETUP** Popup window

# ▣ ATM Teaching

## ➧SETUP - TEACH




**<ATM Teaching Pendant – Teach >**

① **Station:** Defines the station for teaching.
**Slot Type:** Defines whether the teaching of the slot is defined as pitch or performed directly.
**Slot No.:** Defines the Slot for Teaching.
**Max Slot:** Defines the maximum number of slots that can be taught to the current station.
**Arm:** Select the arm that serves as the standard for teaching.
**Jog Speed:** Select the speed when jogging in the current page.
**Z Move:** Determines whether to stop at Z-mid and then move during Pick/Place operation.

② **Position**: Displays the current position of each axis.

③ **Copy**: Copy the current position to the right Teach.

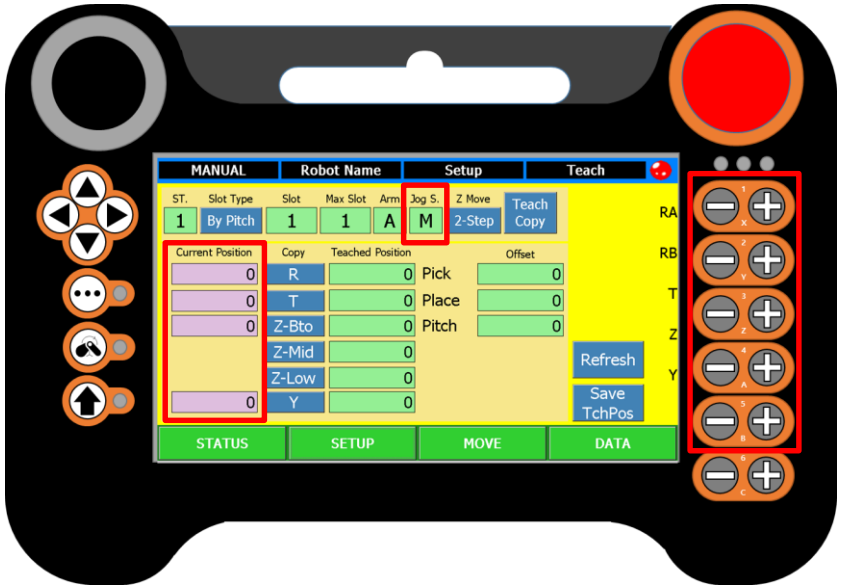
④ **Teach**: This is the value to be taught.

⑤ **Offset**: During Pick/Place operation, the Extend position is operated to a position that is further or less than the set teaching position by the set value.

⑥ **Pitch**: When Slot Type is set to by Pitch, the gap between slots is defined by the pitch value.

⑦ **Save**: The values entered by the user are ultimately stored. It is not saved until SAVE.

## SETUP - TEACH

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# ▣ ATM Teaching Sequence

## LPM Teaching

① Load Foup into LPM
② Go to T/P Setup-Teach screen
③ Designate Teaching Station, Slot, and Arm information
④ Move the robot on the T, Z, and Y axes to the low position of slot 1 at the bottom of the foup.
⑤ Work is in progress to align the edge of the wafer with the wafer line of the end-effector by moving the R, T, and Y axes using the jog of the A arm.
⑥ Raise the Z axis and move to a position where E/E is in close contact with the wafer and slightly rises from the slot.
⑦ Designate the current location as the Teaching location by pressing the Copy button on R, T, Z-Mid, and Y of the T/P.
⑧ Z-up and Z-Low are designated as positions that do not interfere with Z-mid (Z-up is Z-mid +3mm, Z-Low is Z-mid-3mm)
⑨ After checking the teaching data for each axis, click the Save button to save the teaching data.
⑩ After lowering the Z axis from the wafer, move the R axis to 0.
⑪ Move to Goto Low Position of Teaching Station in T/P Move-Manual
⑫ Move to T/P Move-Jog and check for interference during R-Axis operation of the Teaching Arm (if interference occurs, check again form ③~⑩)
⑬ In the T/P Move-Manual, proceed with Goto Low → Extend → Grip On → Mid → Up → Retract to check the pick movement by unit.
⑭ Following ⑬, proceed with Goto BTO → Extend → Grip Off → Mid → Down → Retract to check the place movement by unit.
⑮ TEST pick/place movement

# ▣ ATM Teaching Sequence

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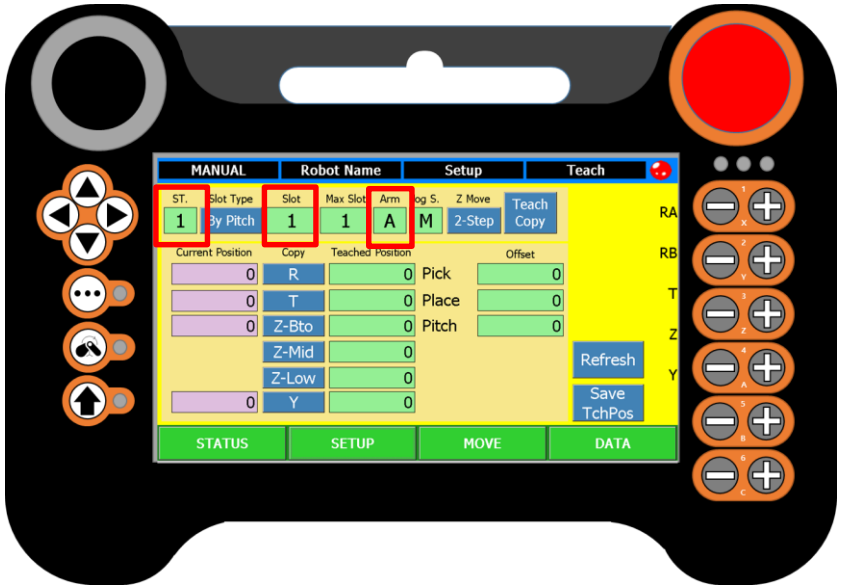


**<ATM Teaching Pendant – Teach >**

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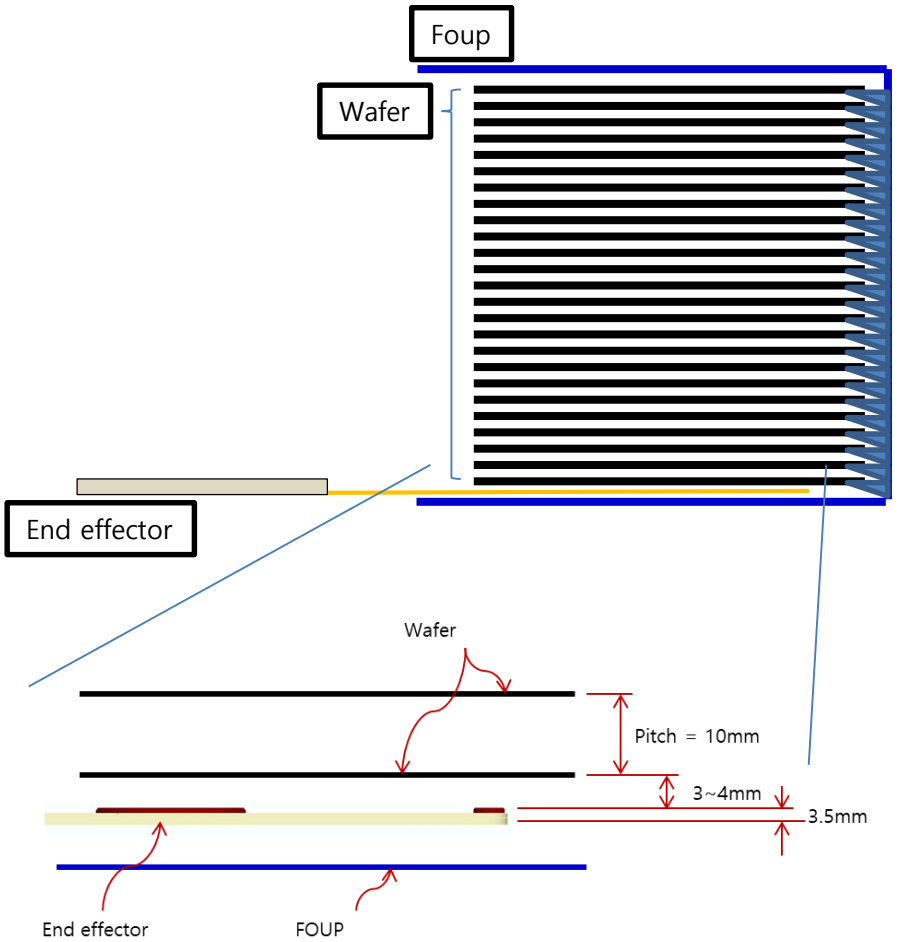


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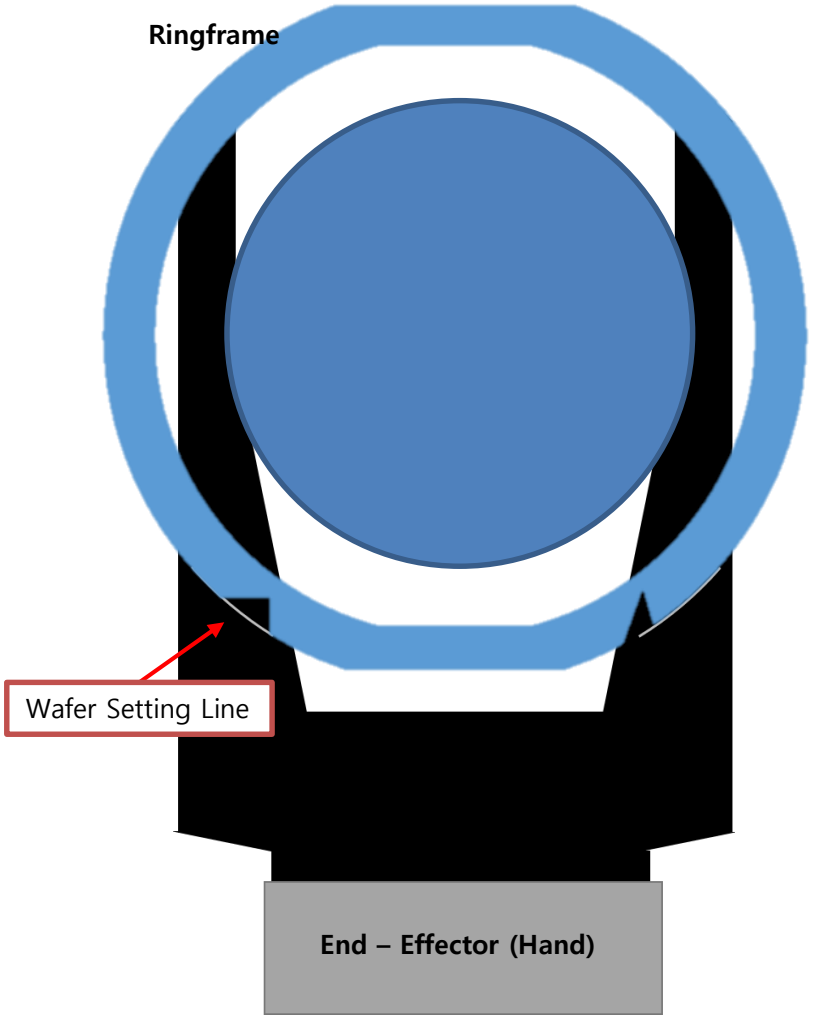


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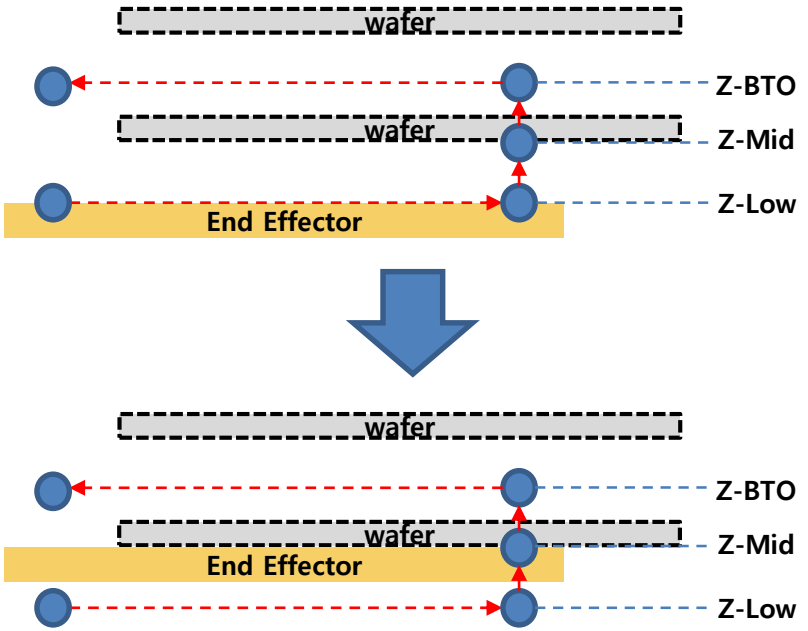


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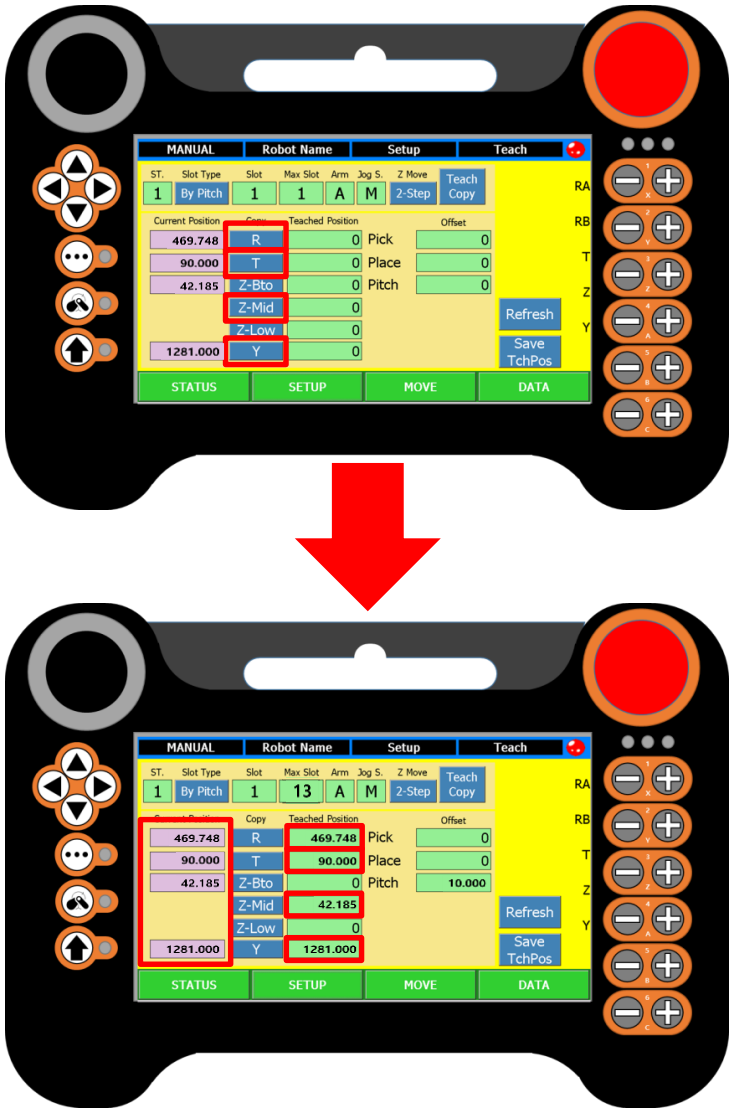


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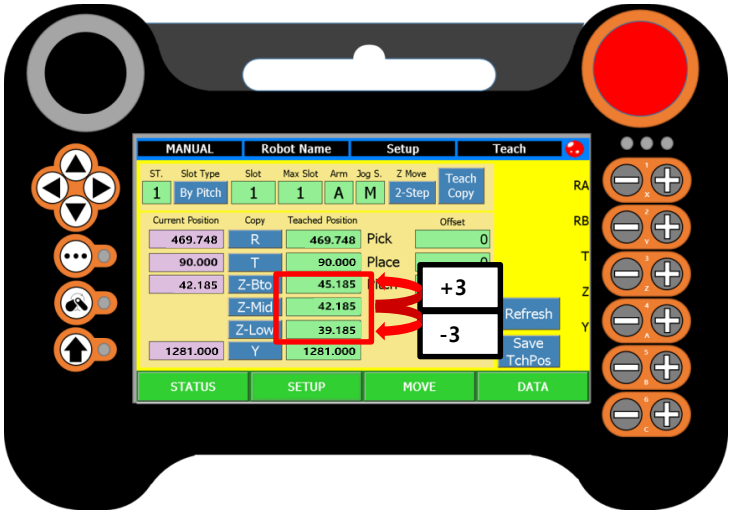


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⑬ In the T/P Move-Manual, proceed with Goto Low → Extend → Grip On → Mid → Up → Retract to check the pick movement by unit.
⑭ Following ⑬, proceed with Goto BTO → Extend → Grip Off → Mid → Down → Retract to check the place movement by unit.
⑮ TEST pick/place movement

# ▣ ATM Teaching Sequence

## LPM Teaching


① Load Foup into LPM
② Go to T/P Setup-Teach screen
③ Designate Teaching Station, Slot, and Arm information
④ Move the robot on the T, Z, and Y axes to the low position of slot 1 at the bottom of the Foup.
⑤ Work is in progress to align the edge of the wafer with the wafer line of the end-effector by moving the R, T, and Y axes using the jog of the A arm.
⑥ Raise the Z axis and move to a position where E/E is in close contact with the wafer and slightly rises from the slot.
⑦ Designate the current location as the Teaching location by pressing the Copy button on R, T, Z-Mid, and Y of the T/P.
⑧ Z-up and Z-Low are designated as positions that do not interfere with Z-mid (Z-up is Z-mid +3mm, Z-Low is Z-mid-3mm)
⑨ After checking the teaching data for each axis, click the Save button to save the teaching data.
⑩ After lowering the Z axis from the wafer, move the R axis to 0.
⑪ Move to Goto Low Position of Teaching Station in T/P Move-Manual
⑫ Move to T/P Move-Jog and check for interference during R-Axis operation of the Teaching Arm (if interference occurs, check again form ③~⑩)
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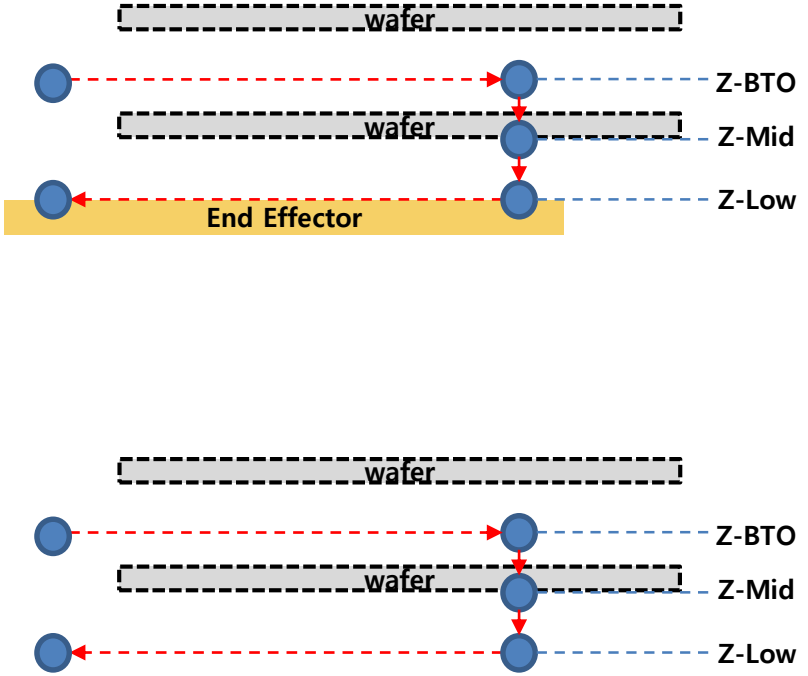
⑮ TEST pick/place movement

# ▣ ATM Teaching Sequence

## LPM Teaching




① Load Foup into LPM
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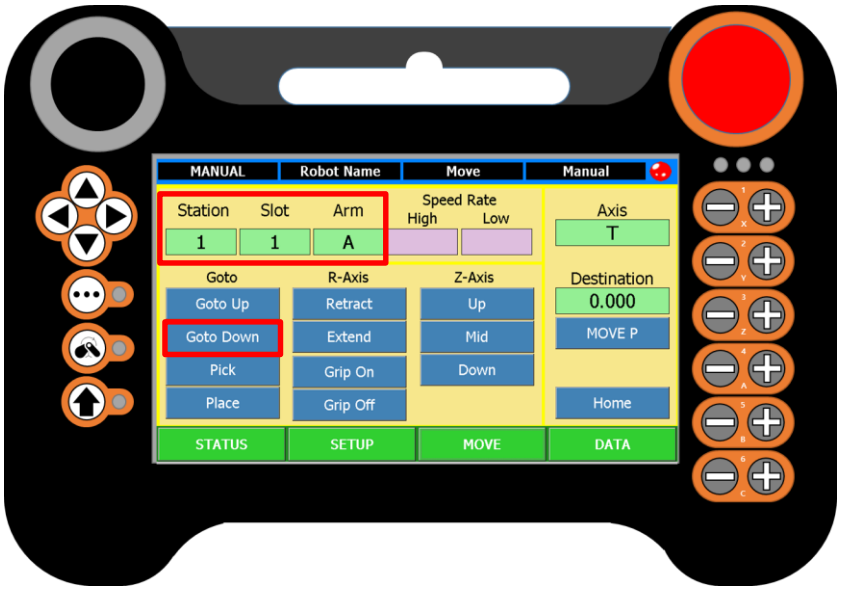
⑮ TEST pick/place movement

# ▣ ATM Teaching Sequence

## LPM Teaching




**<ATM Teaching Pendant – MANUAL >**

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② Go to T/P Setup-Teach screen
③ Designate Teaching Station, Slot, and Arm information
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⑮ TEST pick/place movement

# ▣ ATM Teaching Sequence

## LPM Teaching


**<ATM Teaching Pendant – Jog >**

① Load Foup into LPM
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⑥ Raise the Z axis and move to a position where E/E is in close contact with the wafer and slightly rises from the slot.
⑦ Designate the current location as the Teaching location by pressing the Copy button on R, T, Z-Mid, and Y of the T/P.
⑧ Z-up and Z-Low are designated as positions that do not interfere with Z-mid (Z-up is Z-mid +3mm, Z-Low is Z-mid-3mm)
⑨ After checking the teaching data for each axis, click the Save button to save the teaching data.
⑩ After lowering the Z axis from the wafer, move the R axis to 0.
⑪ Move to Goto Low Position of Teaching Station in T/P Move-Manual
⑫ Move to T/P Move-Jog and check for interference during R-Axis operation of the Teaching Arm (if interference occurs, check again form ③~⑩)
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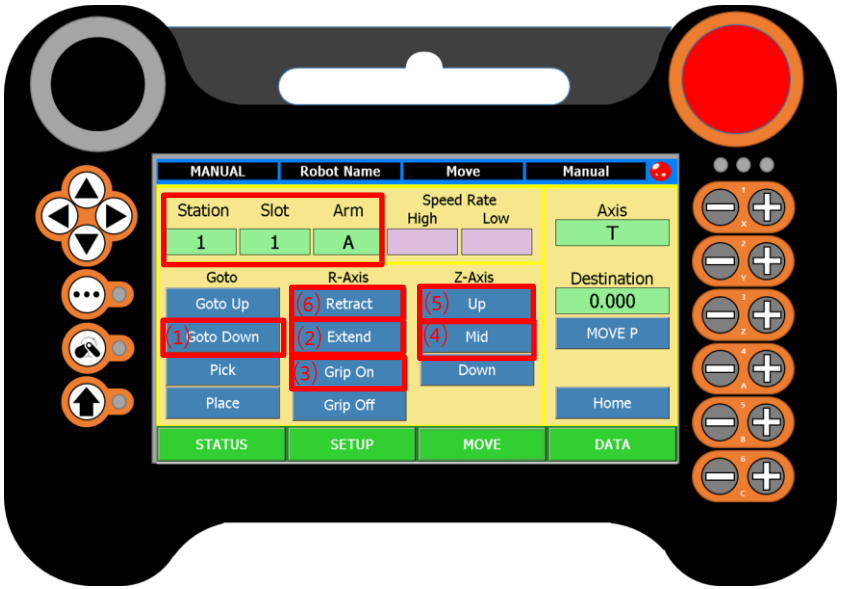
⑮ TEST pick/place movement

# ▣ ATM Teaching Sequence

## LPM Teaching

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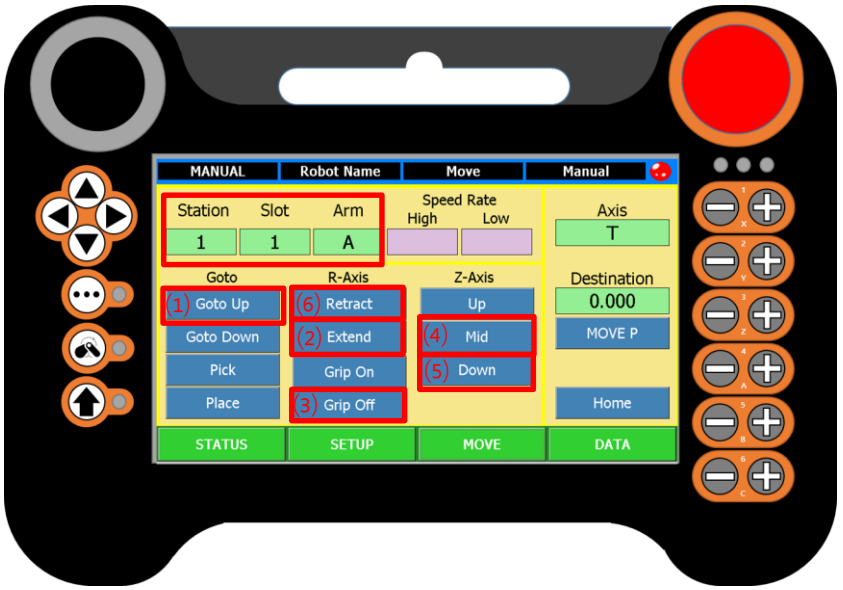
## LPM Teaching

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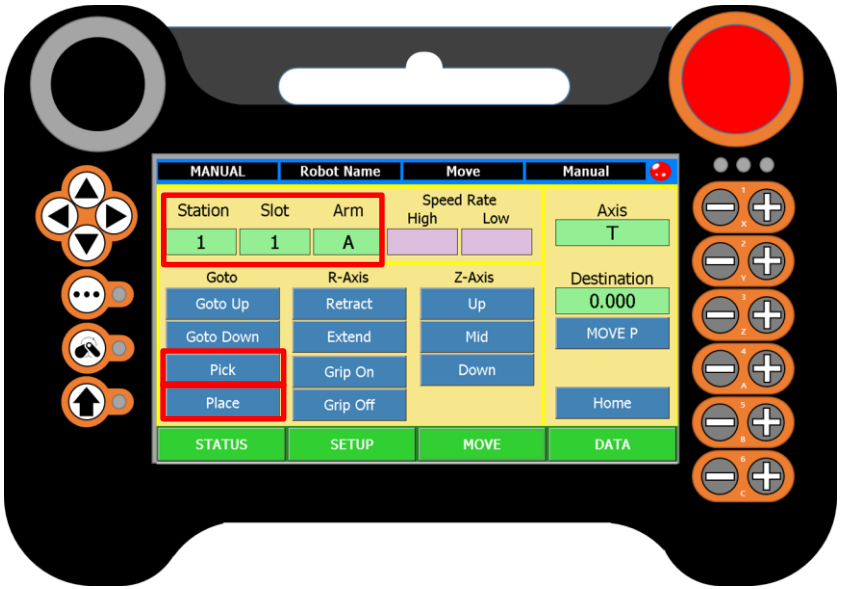


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**END OF DOCUMENT**