Creceed Desktop Robot
CELL MASTER DTHB Series

Environment friendly
RoHS directive compliant products!

Renewal of the high-performance version!
Addition of step out detection, direct teaching function
Creceed  Koganei desktop robot

CELL MASTER DTHB Series

Environment friendly RoHS directive compliant products

High-performance A4 type

Thin configuration fits easily on a desktop

Maximum speed 200 mm/s [7.9 in/sec]

Repeatability of positioning accuracy ±0.02 mm [±0.001 in]

Supports installation of peripheral components

T-slot
(With square nut)

Main unit color that matches the work environment

Y-axis

Main unit installation area
A4-size (210 x 300 mm [8.3 × 11.8 in])

Maximum payload 2 kg [4.409 lb]

Main unit mass: Approx. 5.9 kg [13.007 lb]
(DTHB-AS2)

Multi task function (10 tasks)
This function allows simultaneous parallel execution of multiple tasks by desktop robot peripheral devices, etc. A simple overall system control structure improves operation efficiency.

Direct teaching
Axes can be moved manually to register position points.

Powerful editor functions
A comment field has been added to programs and points. Continuous program send/receive, program batch save and load are now supported.

Step out detection
Generation of step out is detected as an error, which automatically stops operation.

High-level motion control
- Interpolation speed (200 mm/s [7.9 in/sec] maximum speed)
- Constant linear speed
- Triangle acceleration/deceleration prevention function, S-curve control settings, micro step, individual acceleration and deceleration settings

Large memory capacity
10,000 total steps. 10,000 total points. 1 to 1000 programs (depending on parameters).

Programming box and computer support makes work more efficient

Functions for communicating with a computer, and other peripherals
An RS232C interface (two channels for DTHB, one channel for DTHKB) comes equipped. Communication commands and a high data rate of 38.4 kbps improves data communication with a computer.
**A3 type**

Main unit installation area
Equivalent to A3-size

150W power supply built into the main unit
(T100 VAC input)

Maximum speed 500mm/s [19.7 in/sec] (X-axis, Y-axis)

Adjustable Z-axis mounting height
The Z-axis mounting height can be adjusted to one of six levels over a 30 mm [1.181 in] interval.

Maximum payload 5kg [11.023 lb] (DTHKB-ASL3)
Main unit mass: Approx. 14kg [30.865 lb] (DTHKB-ASL3)

A T-slot is used to enable adjustable movement of the X-axis and Y-axis mounting positions. **NOTE**

Note: Guarantees concerning insufficient rigidity cannot be made in the case of assembly defects caused by mounting adjustment movements. Also, depending on the adjustment movement range, the cable length may need to be changed. Contact us for details.

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A3 main unit specification 5
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**CAUTION**

Before use, be sure to read the instruction manual that comes with the product. Also be sure to read the safety precautions on page 3.

- Z-axis
  - A selection of 150 mm [5.9 in] and 200 mm [7.9 in] strokes
  - LED light keeps you informed about control details.
  - RS232 Connector connects to an external computer (2ch)

- X-axis
  - Programming box connector
  - Control box connector
  - I/O connector

- Back of main unit
  - Power terminal block (A4 type only)
  - Z-axis, R-axis connector
  - X-axis, Y-axis connector
  - POWER switch

- Maximum payload 5kg [11.023 lb] (DTHKB-ASL3)
- Main unit mass: Approx. 14kg [30.865 lb] (DTHKB-ASL3)

High-performance A4 type and A3 type robots that support creation of original items

**Z-axis**

A selection of 150 mm [5.9 in] and 200 mm [7.9 in] strokes

**X-axis**

- LED light keeps you informed about control details.
- RS232C connector connects to an external computer (2ch)

**Control box**

- Connector
- X-axis, Y-axis connector
- I/O connector
- POWER switch

**Back of main unit**

- Power terminal block (A4 type only)
- Z-axis, R-axis connector
- X-axis, Y-axis connector

**Main unit installation area**
Equivalent to A3-size

**A T-slot is used to enable adjustable movement of the X-axis and Y-axis mounting positions.**

**NOTE**

Note: Guarantees concerning insufficient rigidity cannot be made in the case of assembly defects caused by mounting adjustment movements. Also, depending on the adjustment movement range, the cable length may need to be changed. Contact us for details.
Before selecting and using the products, please read all the safety precautions carefully to ensure proper product use.

The safety precautions described below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets. Be sure to comply with JIS B 8433 (safety standards for industrial robots).

The directions are ranked according to degree of potential danger or damage: DANGER, WARNING, CAUTION, and ATTENTION

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**DANGER**

- Indicates situations that can be clearly predicted as dangerous. Death or serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.

**WARNING**

- Indicates situations that, while not immediately dangerous, could become dangerous. Death or serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.

**CAUTION**

- Indicates situations that, while not immediately dangerous, could become dangerous. Minor or semi-serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.

**ATTENTION**

- While there is no chance of injury, these points should be observed for appropriate use of the product.

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This product was designed and manufactured for use in general industrial machinery.

- When selecting and handling equipment, the system designer or another person with sufficient knowledge and experience should always read the safety precautions, catalog and other literature before commencing operation. Improper handling is dangerous.

- It is up to you to verify the fitness of compatible parts on your system, and any decisions concerning use of such parts is your responsibility.

- After reading the instruction manual, catalog, and other documentation, always store them in a location that allows easy availability for reference to users of this product.

- Whenever transferring or lending the product to another person, always attach the catalog, instruction manual, and other information, to the product where they are easily visible in order to ensure that the new user can use the product safely and properly. Attach in a clearly visible location on the product to provide information on correct use.

- The danger, warning, and caution items listed under these safety precautions do not cover all possible contingencies. Read the catalog and instruction manual carefully, and always keep safety first.

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**DANGER**

- Do not use the product for the purposes listed below:
  1. Medical equipment related to maintenance or management of human lives or bodies
  2. Mechanical devices or equipment designed for the purpose of moving or transporting people
  3. Critical safety components in mechanical devices

- This product has not been planned or designed for purposes that require advanced stages of safety. It could cause injury to human life.

- Do not use the product in locations with or near dangerous substances such as flammable or ignitable substances. It could ignite or burst into flames.

- Do not enter the machine’s operating area while the product is in operation, or in an operation-ready state. The actuator can move suddenly, possibly resulting in injury.

- Persons who use a pacemaker, etc., should keep a distance of at least 1 meter away from the product. There is a possibility that the pacemaker will malfunction due to the strong magnet built into the product.

- Always place the main unit on a flat, level, and sturdy surface and ensure there is adequate working space around it. Dropping or falling of the product or improper operation could result in injury.

- Never attempt to remodel the product. It could result in abnormal operation leading to injury, electric shock, fire, etc.

- Never attempt inappropriate disassembly, assembly of the product relating to basic construction, or to its performance or to functions. Doing so creates the risk of injury, electric shock, fire, etc.

- Do not splash water on the product. Spraying water on the product, washing the product, or using the product under water creates the risk of malfunction, leading to injury, electric shock, fire, etc.

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**WARNING**

- Do not use the product in excess of its specification range. Such use could result in product breakdowns, function stop, damage, or drastically reduce the operating life.

- Use safety circuits or design a system that prevents damage to machinery and personal injury when the machine is shut down due to an emergency stop or electrical power failure.

- Always implement D-class grounding work (ground resistance 100 Ω or less).

- Current leakage could cause electric shock or erratic operation.

- Before supplying electricity to the device and before starting operation, always conduct a safety check of the area where the machine is operating. Unintentional supply of electricity creates the risk of electric shock or injury due to contact with moving parts.

- Do not touch the terminals and the miscellaneous switches, etc., while the device is powered on. There is a possibility of electric shock and abnormal operation.

- Avoid scratching the cords of cables, etc.

- Letting the cords be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that could lead to fire, electric shock, or abnormal operation.

- If abnormal noise occurs or vibrations are excessive, immediately cease operation. Continued use in this condition may result in abnormal operation or runaway that could lead to product damage or destruction.

- Do not throw the product into fire. The product could explode and/or release toxic gases.

- Do not sit on the product, place your foot on it, or place other objects on it.

- Accidents such as falling and tripping over could result in injury. Dropping or toppling the product may result in injury, or it might also damage or break it, resulting in abnormal or erratic operation, runaway, etc.

- For inspection, maintenance, replacement, or other kinds of operations related to the product, always completely turn off the power supply before beginning.

- Operate within the recommended loads and specified speeds.

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**CAUTION**

- When transporting or installing the product, support it securely with a lift or support tool, and avoid injuries by having multiple people, etc., do the work.

- Do not use the product in locations that are subject to direct sunlight (ultraviolet rays), dust, salt, iron powder, high humidity, or in the media and/or the ambient atmospheres that include organic solvents, phosphate ester type hydraulic oil, sulphur dioxide, chlorine gas, acids, etc. It could lead to an early shutdown of some functions or a sudden degradation of performance, and result in a reduced operating life.

- Do not use the product in atmospheres subject to corrosive gases, flammable gases, flammable liquids, etc. It could lead to a decrease in strength due to rust, or to a risk of the motor igniting or the product exploding.
Handling instructions and precautions

**CAUTION**

Read these precautions carefully before use.

**Mounting**

Read the precautions below for better table linear motion accuracy and to ensure smooth sliding screw movement.

1. Locate the main unit on a surface that is level, flat, and stable.
2. To obtain rigidity of the robot, be sure to provide an adequately large setup and mounting area.

**Environment**

1. Avoid use in locations where there is the chance of water droplets, oil droplets, or other liquids getting onto the main unit, where large amounts of dust are present.
2. Avoid use in locations where sulfur dioxide, hydrochloric acid, or other corrosive gases are generated.
3. Avoid locations subjected to strong vibration and/or impact.

**Other**

Before use, be sure to read the instruction manual that comes with the product.

- **ATTENTION**
  - When considering the possibility of using this product in situations or environments not specifically noted in the Catalog or Owner’s Manual, or in applications where safety is an important requirement such as in an airplane facility, combustion equipment, leisure equipment, safety equipment, and other places where human life or assets may be greatly affected, take adequate safety precautions such as an application with enough margins for ratings and performance or fail-safe measure.
  - Be sure to consult us about such applications.
  - Use a protective cover, etc., to ensure that the operating portions of mechanical devices, etc., are isolated and do not come into direct contact with human bodies.
  - Do not control the product in a way that would cause a workpiece to fall during a power failure. Take control measures so that they prevent the table and the workpiece, etc., from falling during a power failure or an emergency stop of the mechanical devices.
  - Always check the Owner’s Manual and other reference materials for product wiring.
  - When handling the product, wear protective gloves, safety glasses, safety shoes, etc., to keep safety.
  - When the product can no longer be used, or is no longer necessary, dispose of it appropriately as industrial waste.
  - For inquiries about the product, consult Koganei Overseas Department. The telephone number is shown on the back cover of this owner’s manual.

- **Other**
  - Always observe the following items.
    1. When using this product in a system, use only genuine Koganei parts or compatible parts (recommended parts).
    2. Use only authentic Koganei parts or compatible parts (recommended parts) to do maintenance or repairs.
  - Always observe the prescribed methods and procedures.
  - 2. Never inappropriately disassemble or modify the product in relation to its basic construction, performance, or functions.

Koganei cannot be held responsible for any problems that occur as a result of these safety precautions not being properly observed.
### Main unit specification

<table>
<thead>
<tr>
<th>Main unit type</th>
<th>DTHB-AS2</th>
<th>DTHB-AS3</th>
<th>DTHB-ASL3</th>
<th>DTHB-AL2</th>
<th>DTHB-AL3</th>
<th>DTHB-CS2</th>
<th>DTHB-CS3</th>
<th>DTHB-CLS3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive method</td>
<td>X:Y:Z</td>
<td>2-phase stepping motor (micro step control) + Encoder</td>
<td>Slide screw drive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drive mechanism</td>
<td>X:Y:Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Repeatability</td>
<td>X:Y</td>
<td>±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
</tr>
<tr>
<td>(mm [in])</td>
<td>Z</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lead (mm [in])</td>
<td>X:Y</td>
<td>6 [0.236]</td>
<td>6 [0.236]</td>
<td>6 [0.236]</td>
<td>6 [0.236]</td>
<td>6 [0.236]</td>
<td>6 [0.236]</td>
<td>6 [0.236]</td>
</tr>
<tr>
<td>(kg [lb]) ³</td>
<td>Z</td>
<td>2 [0.097]</td>
<td>2 [0.097]</td>
<td>2 [0.097]</td>
<td>2 [0.097]</td>
<td>2 [0.097]</td>
<td>2 [0.097]</td>
<td>2 [0.097]</td>
</tr>
<tr>
<td>Interpolation speed</td>
<td>X:Y</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
</tr>
<tr>
<td>(m/s [in/sec])</td>
<td>Z</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
</tr>
<tr>
<td>Continuous</td>
<td>X:Y</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
</tr>
<tr>
<td>(m/s [in/sec])</td>
<td>Z</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
</tr>
<tr>
<td>Number of control axes</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
<td>Simultaneous 4-axis control</td>
</tr>
</tbody>
</table>

### 3-axis gantry type DTHB-AL3

- **Drive method**: X:Y:Z
- **Drive mechanism**: X:Y:Z
- **Maximum speed**: 200 [7.9] m/s (7.9 [2.756] ft/s)
- **Repeatability**: ±0.02 [±0.001] mm (±0.02 [±0.001] in)
- **Lead**: 6 [0.236] mm (0.236 [0.097] in)
- **Interpolation speed**: 1 ~ 200 [0.039 ~ 7.9] m/s (7.9 [2.756] ft/s)

### 2-axis gantry type DTHB-AL2

- **Drive method**: X:Y:Z
- **Drive mechanism**: X:Y:Z
- **Maximum speed**: 200 [7.9] m/s (7.9 [2.756] ft/s)
- **Repeatability**: ±0.02 [±0.001] mm (±0.02 [±0.001] in)
- **Lead**: 6 [0.236] mm (0.236 [0.097] in)
- **Interpolation speed**: 1 ~ 200 [0.039 ~ 7.9] m/s (7.9 [2.756] ft/s)

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**Note 1**: Point settings that take into consideration the deflection at the end of the Y axis are required.

**Note 2**: Interpolation speed when the Z axis is used, 1 to 70 mm/s [0.039 to 2.756 in/sec].

**Note 3**: These are XY axes and ZR axis combinations.

**Note 4**: Program selection from the operation box is 0 to 99.

**Note 5**: Special input/output assignment.

**Note 6**: Dedicated input/output pairs.

**Note 7**: COUNTER RESET, AUTO-RUN, RESET, ORG-START, EMG.
## Main unit specification

<table>
<thead>
<tr>
<th>Main unit type</th>
<th>DTHKB-ASL3</th>
<th>DTHKB-CSL3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating range (mm [in])</td>
<td>X 300 [11.8]</td>
<td>300 [11.8]</td>
</tr>
<tr>
<td></td>
<td>Y 350 [13.8]</td>
<td>300 [11.8]</td>
</tr>
<tr>
<td></td>
<td>Z 100 [3.9]</td>
<td>100 [3.9]</td>
</tr>
<tr>
<td>Drive method</td>
<td>X-Y, Z</td>
<td>2-phase stepping motor (micro step control) + Encoder</td>
</tr>
<tr>
<td>Drive mechanism</td>
<td>X-Y</td>
<td>Timing belt drive</td>
</tr>
<tr>
<td></td>
<td>Z</td>
<td>Slide screw drive</td>
</tr>
<tr>
<td>Maximum speed (mm/s [in/sec])</td>
<td>X-Y 500 [19.7]</td>
<td>500 [19.7]</td>
</tr>
<tr>
<td></td>
<td>Z 70 [2.756]</td>
<td>70 [2.756]</td>
</tr>
<tr>
<td>Repeatability (mm [in])</td>
<td>X-Y ±0.05 [±0.002]</td>
<td>±0.05 [±0.002]</td>
</tr>
<tr>
<td></td>
<td>Z ±0.02 [±0.001]</td>
<td>±0.02 [±0.001]</td>
</tr>
<tr>
<td>Maximum payload (kg [lb])</td>
<td>Y 5 [11.023]</td>
<td>1 ~ 200 [0.039 ~ 7.9] (Note2)</td>
</tr>
<tr>
<td></td>
<td>Z 2 [4.409]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
</tr>
<tr>
<td>Lead (mm [in])</td>
<td>X-Y 48 [1.890]</td>
<td>48 [1.890]</td>
</tr>
<tr>
<td></td>
<td>Z 2 [0.079]</td>
<td>2 [0.079]</td>
</tr>
<tr>
<td>Interpolation speed (Constant speed) (mm/s [in/sec])</td>
<td>Straight line 1 ~ 200 [0.039 ~ 7.9] (Note2)</td>
<td>1 ~ 200 [0.039 ~ 7.9] (Note2)</td>
</tr>
<tr>
<td></td>
<td>Arc 1 ~ 200 [0.039 ~ 7.9]</td>
<td>1 ~ 200 [0.039 ~ 7.9]</td>
</tr>
<tr>
<td></td>
<td>Continuous 1 ~ 200 [0.039 ~ 7.9] (Note2)</td>
<td>1 ~ 200 [0.039 ~ 7.9] (Note2)</td>
</tr>
</tbody>
</table>

### Program

- **Program method:** Robot language
- **Number of control axes:** Simultaneous 4-axis control
- **Position setting unit:** mm setting
- **Operating method:** PTP operation, CP operation
- **Interpolation function:** 4-axis linear interpolation, 2-axis circular interpolation (Note3), 2-axis continuous interpolation (Note3)
- **Position control:** Open loop + Step out detection
- **Speed setting:** One robot language operation setting, parameter settings
- **Acceleration setting:** Setting by acceleration/deceleration parameters
- **Number of control axes:** 10 tasks
- **Number of programs:** 1 to 1000 (Number of programs depends on parameters) (Note4)
- **Number of steps in a program:** Total number of steps: 10,000
- **Number of steps:** 10,000 points
- **Number of points:** 10,000 points
- **Point input method:** Manual data input (coordinate input) by programming box; Off-line programming by teaching playback, direct teaching, and computer
- **General purpose I/O:** IN24 points, OUT24 points (In the parameter settings, pin No. allocation, custom input/output allocation, custom input 5 points (Note5), custom output 5 points (Note6))
- **External connection:** RS232C (1ch), programming box connector, operation box connector, I/O connector
- **COM port (transmission rate):** RS232C (38.4kbps)
- **Power supply:** 100 ~ 240 VAC 50/60 Hz (Note7)
- **Operating temperature:** 0 ~ 40°C [32 ~ 104°F]
- **Operating humidity:** 35 ~ 85% RH (no condensation)
- **Storage temperature:** -10 ~ 50°C [14 ~ 122°F]
- **Mass:** Approx. 14 kg [30.865 lb]

### Note

1. Point settings that take into consideration the deflection at the end of the Y axis are required.
2. Interpolation speed when the Z axis is used, 1 to 70 mm/s [0.039 to 2.756 in/sec].
3. These are XY axes and ZR axis combinations.
4. Program selection from the operation box is 0 to 99.
5. COUNTER RESET, AUTO-RUN, RESET, ORG-START, EMG
6. READY, BUSY, END, RETURN TO ORIGIN COMPLETE OUTPUT, ALM OUTPUT
7. The power cord provided is for 100VAC.
### Main unit order codes

<table>
<thead>
<tr>
<th>Gantry type</th>
<th>Cartesian type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A4 type</td>
<td>A3 type</td>
</tr>
<tr>
<td>DTHB-AS2</td>
<td>DTHB-AL3</td>
</tr>
<tr>
<td>DTHB-AS3</td>
<td>DTHB-CS3</td>
</tr>
<tr>
<td>DTHB-ASL3</td>
<td>DTHB-CSL3</td>
</tr>
<tr>
<td>DTHB-AL2</td>
<td></td>
</tr>
<tr>
<td>DTHB-AL3</td>
<td></td>
</tr>
<tr>
<td>DTHB-C2D</td>
<td></td>
</tr>
<tr>
<td>DTHB-C3</td>
<td></td>
</tr>
<tr>
<td>DTHB-C3L</td>
<td></td>
</tr>
</tbody>
</table>

**X-axis stroke**
- 150 mm [5.9 in] (A4 type)
- 200 mm [7.9 in] (A4 type)
- 100 mm [3.9 in] (A4 type)

**Number of 2-axis 3-axis**
- 3-axis (A4 type)
- 3-axis (A3 type)

**Note:** Contact Koganei separately when using a 4th axis.

### System configuration

* Attachments/accessories
* Option (sold separately)
* Items to be prepared by you.

### Robot language list

<table>
<thead>
<tr>
<th>No.</th>
<th>Command operand code</th>
<th>Description and Operand Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>000</td>
<td>ORG</td>
<td>Executes return to origin.</td>
</tr>
<tr>
<td>001</td>
<td>ORGM</td>
<td>Specifies the speed and sequence when executing return to origin. &lt;specified axis&gt;, &lt;axis sequence&gt;, &lt;axis sequence&gt;, &lt;axis sequence&gt;</td>
</tr>
<tr>
<td>022</td>
<td>MOVF</td>
<td>Moves to the absolute point data position. &lt;specified axis&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>024</td>
<td>MOVI</td>
<td>Moves to the relative point data position. &lt;specified axis&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>032</td>
<td>MOVA</td>
<td>Moves to the absolute point data position. &lt;specified axis&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>034</td>
<td>MOVD</td>
<td>Moves to the relative point data position. &lt;specified axis&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>035</td>
<td>MOVF</td>
<td>Moves until the specified DI matches the state. &lt;specified axis&gt;, &lt;point No.&gt;, &lt;DI No.&gt;</td>
</tr>
<tr>
<td>036</td>
<td>MOVI</td>
<td>Moves until the specified DI matches the state. &lt;specified axis&gt;, &lt;point No.&gt;, &lt;DI No.&gt;</td>
</tr>
<tr>
<td>037</td>
<td>DRVA</td>
<td>Moves to the absolute point data position on the specified axis. &lt;specified axis&gt;, &lt;specified axis&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>038</td>
<td>DRVI</td>
<td>Moves to the relative point data position on the specified axis. &lt;specified axis&gt;, &lt;specified axis&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>039</td>
<td>DRFV</td>
<td>Moves until the specified DI matches the state on the specified axis. &lt;specified axis&gt;, &lt;specified axis&gt;, &lt;point No.&gt;, &lt;DI No.&gt;</td>
</tr>
<tr>
<td>040</td>
<td>DO</td>
<td>Turns DO output on and off. &lt;DO No.&gt;, &lt;DO state&gt;</td>
</tr>
<tr>
<td>041</td>
<td>WAIT</td>
<td>Waits for the specified time. &lt;time&gt;</td>
</tr>
<tr>
<td>042</td>
<td>TIMR</td>
<td>Waits for the specified time. &lt;time&gt;</td>
</tr>
<tr>
<td>043</td>
<td>MAT</td>
<td>Defines the matrix. &lt;pallet No.&gt;, &lt;row (Y)&gt;, &lt;column (X)&gt;</td>
</tr>
<tr>
<td>044</td>
<td>SHFT</td>
<td>Shifts the position data. &lt;point No.&gt;</td>
</tr>
<tr>
<td>045</td>
<td>SHFR</td>
<td>Resets the position data shift. &lt;point No.&gt;</td>
</tr>
<tr>
<td>046</td>
<td>MDO</td>
<td>Turns DO output during movement. &lt;point No.&gt;, &lt;point No.&gt;, &lt;DO No.&gt;, &lt;DO state&gt;</td>
</tr>
<tr>
<td>047</td>
<td>P</td>
<td>Sets a point variable. &lt;point variable No.&gt;, &lt;point No.&gt;</td>
</tr>
<tr>
<td>048</td>
<td>P+</td>
<td>Adds to the point variable. &lt;point variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>049</td>
<td>P-</td>
<td>Subtracts from the point variable. &lt;point variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>050</td>
<td>C</td>
<td>Sets a counter variable. &lt;counter variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>051</td>
<td>C+</td>
<td>Adds to the counter variable. &lt;counter variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>052</td>
<td>C-</td>
<td>Subtracts from the counter variable. &lt;counter variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>053</td>
<td>TON</td>
<td>Starts multitask program. &lt;task No.&gt;, &lt;program No.&gt;</td>
</tr>
<tr>
<td>054</td>
<td>TOFF</td>
<td>Ends multitask program. &lt;task No.&gt;</td>
</tr>
<tr>
<td>055</td>
<td>JMPC</td>
<td>Counter jump. &lt;program No.&gt;, &lt;labe No.&gt;, &lt;counter No.&gt;</td>
</tr>
<tr>
<td>056</td>
<td>VCHG</td>
<td>Changes the speed. &lt;specified axis&gt;, &lt;point No.&gt;, &lt;axis pattern&gt;</td>
</tr>
<tr>
<td>057</td>
<td>STOP</td>
<td>Stops all axes.</td>
</tr>
</tbody>
</table>

### Support software

Note: RS232C cable (reference)

Specification: D-sub connector female D-sub connector female Cross cable

Type: C232R-015 (1.5 m [4.92 ft]) C232R-030 (3.0 m [9.84 ft])

Manufacturer: Elecom

---

<table>
<thead>
<tr>
<th>No.</th>
<th>Command operand code</th>
<th>Description and Operand Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>086</td>
<td>END</td>
<td>Ends program.</td>
</tr>
<tr>
<td>087</td>
<td>ACHA</td>
<td>Executes arched movement by the absolute point data. &lt;specified axis&gt;, &lt;point No.&gt;, &lt;point No.&gt;, &lt;point data&gt;, &lt;position data&gt;</td>
</tr>
<tr>
<td>088</td>
<td>ACHI</td>
<td>Executes arched movement by the relative point data. &lt;specified axis&gt;, &lt;point No.&gt;, &lt;point No.&gt;, &lt;point data&gt;, &lt;position data&gt;</td>
</tr>
<tr>
<td>089</td>
<td>MOLR</td>
<td>Moves by linear interpolation to the absolute point data position. &lt;specified axis&gt;, &lt;speed&gt;, &lt;point No.&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>090</td>
<td>MOLR</td>
<td>Moves by linear interpolation to the relative point data position. &lt;specified axis&gt;, &lt;speed&gt;, &lt;point No.&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>091</td>
<td>MOLF</td>
<td>Moves by linear interpolation until the specified DI matches the state. &lt;specified axis&gt;, &lt;speed&gt;, &lt;point No.&gt;, &lt;point No.&gt;, &lt;DI No.&gt;, &lt;DO state&gt;</td>
</tr>
<tr>
<td>092</td>
<td>MOLF</td>
<td>Moves by linear interpolation to the absolute point data position. &lt;specified axis&gt;, &lt;speed&gt;, &lt;point No.&gt;, &lt;point data&gt;</td>
</tr>
<tr>
<td>093</td>
<td>COLA</td>
<td>Moves around the circular interpolation defined by the absolute point data positions (2 axes). &lt;specified axis&gt;, &lt;speed&gt;, &lt;center point No.&gt;, &lt;center point No.&gt;, &lt;point No.&gt;, &lt;point No.&gt;</td>
</tr>
<tr>
<td>094</td>
<td>COLA</td>
<td>Moves around the circular interpolation defined by the absolute point data positions (2 axes). &lt;specified axis&gt;, &lt;speed&gt;, &lt;center point No.&gt;, &lt;center point No.&gt;, &lt;point No.&gt;, &lt;point No.&gt;</td>
</tr>
<tr>
<td>095</td>
<td>COLF</td>
<td>Moves around the circular interpolation defined by the absolute point data positions (2 axes). &lt;specified axis&gt;, &lt;speed&gt;, &lt;center point No.&gt;, &lt;center point No.&gt;, &lt;point No.&gt;, &lt;point No.&gt;</td>
</tr>
<tr>
<td>096</td>
<td>PALP</td>
<td>Moves the pallet. &lt;speed&gt;, &lt;pallet No.&gt;, &lt;matrix No.&gt;</td>
</tr>
<tr>
<td>097</td>
<td>PALL</td>
<td>Waits for linear interpolation movement of the pallet. &lt;speed&gt;, &lt;pallet No.&gt;, &lt;matrix No.&gt;</td>
</tr>
<tr>
<td>098</td>
<td>L</td>
<td>Defines the label. &lt;variable No.&gt;</td>
</tr>
<tr>
<td>100</td>
<td>CALL</td>
<td>Calls another program. &lt;program No.&gt;, &lt;label No.&gt;, &lt;count&gt;</td>
</tr>
<tr>
<td>101</td>
<td>JMP</td>
<td>Jumps to a specified program. &lt;program No.&gt;, &lt;label No.&gt;</td>
</tr>
<tr>
<td>102</td>
<td>DSET</td>
<td>Sets DI to a variable. &lt;variable No.&gt;, &lt;DI No.&gt;</td>
</tr>
<tr>
<td>103</td>
<td>DVEN</td>
<td>Energizes a specified axis. &lt;specified axis&gt;, &lt;driver current/hold current&gt;</td>
</tr>
<tr>
<td>104</td>
<td>SET</td>
<td>Sets variable. &lt;variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>105</td>
<td>ADD</td>
<td>Adds variable. &lt;variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>106</td>
<td>SUB</td>
<td>Subtracts variable. &lt;variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>107</td>
<td>AND</td>
<td>Executes logical product of the variables. &lt;variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>111</td>
<td>OR</td>
<td>Executes logical sum of the variables. &lt;variable No.&gt;, &lt;data&gt;</td>
</tr>
<tr>
<td>112</td>
<td>JMBP</td>
<td>Jumps when DI input matches the specified DI state. &lt;program No.&gt;, &lt;label No.&gt;, &lt;DI No.&gt;, &lt;DI state&gt;</td>
</tr>
<tr>
<td>120</td>
<td>TOS</td>
<td>Starts a continuous interpolation. &lt;specified axis&gt;</td>
</tr>
<tr>
<td>121</td>
<td>TOC</td>
<td>Continues the continuous interpolation. &lt;specified axis&gt;</td>
</tr>
<tr>
<td>122</td>
<td>TOE</td>
<td>Ends the continuous interpolation. &lt;specified axis&gt;</td>
</tr>
<tr>
<td>236</td>
<td>SRVO</td>
<td>Turns the driver output ON/OF. &lt;X&gt;, &lt;Y&gt;, &lt;Z&gt;, &lt;P&gt;</td>
</tr>
<tr>
<td>240</td>
<td>ACK</td>
<td>Responds to communication. &lt;port No.&gt;</td>
</tr>
</tbody>
</table>
Accessories, options (For both A3 and A4 type)

**Accessories**

- **Operation box**
  - DTHBM-OB (Cable length: 1 m [3.281 ft])
  ![Operation box]

- **Dimensions** mm [in]
  ![Dimensions diagram]

- **100 VAC power cable**
  - (Cable length: 2 m [6.562 ft])
  - *Included with A3 type only.*

**Options**

- **I/O cable**
  - **DTHBP-CTA** (Cable length: 0.5 m [1.640 ft])
  - **DTHBP-CTB** (Cable length: 0.5 m [1.640 ft]; with wiring terminal)

- **Programming box**
  - DTHBP-PB (Cable length: 1 m [3.281 ft])

- **Dimensions** mm [in]
  ![Programming box dimensions]

**Support software**

- **DTHB Editor**
  - (For Windows 95, 98, Me, NT4.0, 2000, XP)
  - **DTHBP-SW-HTA** (Japanese)
  - **DTHBP-SW-HTC** (English)

*Windows is a registered trademark of Microsoft Corporation of the United States.*

**Note:** An I/O connector for connecting with external control equipment is not included with the controller. Either order an optional I/O connector or provide a separate IEEE1284 standard connector.
Dimensions mm [in]

Gantry

**A4 type**

DTHB-AS2

X-axis: 150 mm [5.906 in]

Note: A total of six square nuts on stand sides and back.

Gantry

**A4 type**

DTHB-AS3

DTHB-ASL3

X-axis: 150 mm [5.906 in]

Note: A total of six square nuts on stand sides and back.
Gantry

2-axis

DTHB-AL2

X-axis: 200 mm [7.874 in]

DTHB-ALL3

Note: A total of six square nuts on stand sides and back.

Gantry

3-axis

DTHB-AL3

DTHB-ALL3

X-axis: 200 mm [7.874 in]

Note: A total of six square nuts on stand sides and back.
Note 1: T-slot cross section

Note 2: A total of eight square nuts on stand front.
Dimensions \( \text{mm} \) [\( \text{in} \)]

DTHKB-CSL3

Cartesian 3-axis

Note 1: T-slot cross section

Note 2: A total of eight square nuts on stand front.
Pick and press function

● Low cost pick and place unit using the Cell Master DTHB Series on the X-axis and Y-axis.

Sealant application mechanism

● Applies sealant to the workpiece application surface.
The main changes resulting from renewal from the DTH (K) Series to the DTH (K) B Series are shown below.
For details about DTH (K) B Series specifications and functions, refer to the instruction manual.

<table>
<thead>
<tr>
<th>Changed item</th>
<th>DTH(K)</th>
<th>DTH(K) B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gantry type Y-axis stroke (A4-size only)</td>
<td>180 mm [7.1 in]</td>
<td>200 mm [7.9 in] (top cover change)</td>
</tr>
<tr>
<td>Position of control box mounting connector</td>
<td>Main unit back, lower left side</td>
<td>Main unit front, lower right side</td>
</tr>
<tr>
<td>RS232C connector (communication cable)</td>
<td>Female (male-female cross cable)</td>
<td>Male (female-female cross cable)</td>
</tr>
<tr>
<td>Motor cover length (Each A4-size axis, A3-size Z-axis)</td>
<td>70 mm [2.756 in]</td>
<td>78 mm [3.071 in]</td>
</tr>
<tr>
<td>Motor cover height (A3-size, X- and Y-axes)</td>
<td>67 mm [2.638 in]</td>
<td>70 mm [2.756 in]</td>
</tr>
<tr>
<td>Encoder mounting</td>
<td>None</td>
<td>Available</td>
</tr>
<tr>
<td>Step out detection function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Direct teaching function</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Editor/program point comments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Editor/program batch save and load</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Editor/program continuous send and receive</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>