ROBOTICS AWARD 2014 winner

KeTop T10 directMove

Operate robots quickly and easily using intuitive gestures

The innovative KeTop T10 directMove handheld unit heralds the beginning of a new era in mobile robot operation. This revolutionary type of intuitive teach-in supersedes complex abstraction and complicated thought processes in coordinate systems. It is simpler and more efficient – both for experienced operators as well as for new users. The time required and the associated costs are minimized considerably, and operational errors are reduced effectively.

directMove - Show the robot the way

Using the inertial sensors of the 6D Inertial Measurement Unit (6D IMU), the KeTop T10 directMove detects its position and direction in the three-dimensional space. The operator can therefore easily specify the required movement or rotation by indicating in the direction of motion and then operating a small joystick – regardless of his/her position relative to the robot. This means that no in-depth knowledge of coordinate systems is required. The motion speed can be changed via the intensity of the joystick movements.

This means that individual path points can be set and finely adjusted using the KeTop T10 directMove. If required, standard operating units and screen devices such as notebooks can also be used for programming.

New opportunities

Even companies without the relevant experts on hand, who may previously have dispensed with robots in production process, can now feel confident in acquiring such systems. Thanks to the KeTop T10 directMove the teach-in of the kinematics is possible with minimal time required for training and familiarisation. For example, in service robotics where heavy loads are moved and complex coordinate systems are built upon each other, a teach-in is tricky to implement. But the KeTop T10 directMove offers a very noticeable increase in ease of operation.

KEBA®

Automation by innovation.

KeTop T10 directMove

Operate robots quickly and easily using intuitive gestures

Flexibility with 4 operating modes

The user has four operating modes available. It is possible to switch between these modes very simply as required. A 1.5“ color display indicates the active mode using icons.

directMove mode: The robot follows the direction instructions from the KeTop T10 directMove completely freely in the space.

snap2grid mode: Use of defined coordinate systems as reference directions for the KeTop T10 directMove for precisely directed movements of the robot.

virtual handle mode: The KeTop T10 directMove acts as a virtual handle on the Tool Center Point (TCP) to change its alignment quickly and easily.

axial movement mode: for the direct movement of individual robot axes as with a conventional handheld unit.

Maximum operational safety

Emergency stop and 3-position enabling switch guarantee the same high safety standard as with traditional handheld units. In addition, special safety functions which can be executed on any control prevent the robot following rapid, accidental movements of the KeTop T10 directMove. Excessively fast moved robot joints are locked.

Features and benefits

- Ideal for the teach-in of 6-axis robots
- Intuitive operation with no robot programming knowledge required
- Particular safe extricating the robot from tricky situations, even for less experienced operators
- Around 20% time saving with the teach-in
- Optional customizing of keyboard and display icons

Technical data

Housing
- LxWxH [mm]: approx. 190 x 60 x 50
- Weight: approx. 250 g (without cable)
- Housing material: ABS/PC
- Color: RAL 7016 anthracite grey
- Protection class: IP 54

Display
- Size: 1.45”
- Resolution: 128 x 128 pixel, color

Operating elements
- 2-axis joystick with button functionality
- Membrane keyboard with max. 10 tactile keys

Safety elements
- 3-position enabling switch (dual circuit)
- Emergency stop button (dual circuit)

CPU
- Cortex M3 Stellaris®

Memory
- 2 MB Flash

Communication interface
- Ethernet 10 Mbit/s

Supply voltage
- 24 V DC

Current consumption
- Max. approx. 100 mA at 24 V DC

Ambient conditions
- Operating temperature: 0…45 °C
- Storage temperature: -25…70 °C
- Relative humidity: 5…95 % (non-condensing)
- Vibration resistance / shock resistance according to EN 61131-2

Sensor system
- 6D IMU (Acceleration and gyro sensors)
- Max. swing speed 2000 °/s
- Drift when stationary: 1 °/min
- Accuracy: typ. 2-3 ° (first minute after calibration)
- Max. orientation update rate: 10 ms

Certificates
- UL, CE

KEBA®

Automation by innovation.

KEBA AG, Gewerbepark Urfahr, 4041 Linz/Austria, Phone: +43 732 7090-0, Fax: +43 732 730910, keba@keba.com, www.keba.com

Subject to changes, in terms of continuing technical development, without prior notice. No responsibility is taken for the correctness of this information. All rights reserved. 1A - F4