EWELLIX

MAKERS IN MOTION

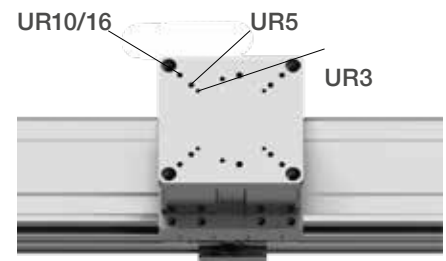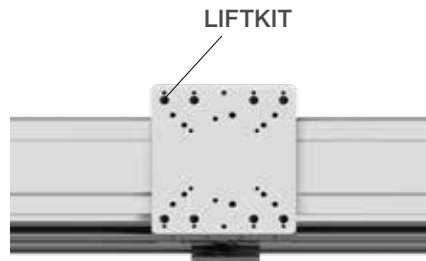INSTALLATION, OPERATION AND MAINTENANCE MANUAL
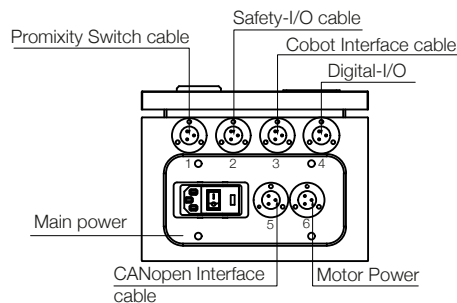
SLIDEKIT 2.0

Quick start guide

For more details on each step, read the full instructions

1. Mount LIFTKIT or Universal Robot on SLIDEKIT

LIFTKIT

UR10/16 **UR5**

UR3

2. Matching number of connecting cables and connectors

Promixity Switch cable
Safety-I/O cable
Cobot Interface cable
Digital-I/O
Main power
CANopen Interface cable
Motor Power

Safety I/O connection

Pin No.	Name	Color
1	SR1 + 24V	Red
2	SR1 GND	White
3	SR2 + 24V	Black
4	SR2 GND	Green
5	N.C.	N.C.

A1 14 24 32
A2 13 23 31
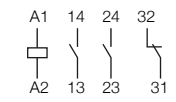
23	24
13	14

A1	A2
31	32

The Slidekit2.0 control box has two integrated safety relay 7S.23 from Finder with forcibly guided contacts.

Their coil and feedback contacts are wired directly to the I/O connector.

1 2 3 5 6

3. Software Installation

3.1. Click the hamburger menu in the top right corner

3.2. Click settings

4. Software installation

4.1. Go to System ⌐→ URCaps and press +

4.2. Insert the SLIDEKIT USB Drive into the USB port at the teach pendant, choose the URCaps file from the SLIDEKIT USB drive, then press "Restart".

5. Installation tab

5.1. Go to Installation -> URCaps -> SLIDEKIT.

5.2. Set up three aspects of the SLIDEKIT operation:

    5.2.1. Communication

    5.2.2. SLIDEKIT Setup

    5.2.3. Position Setup

5.3. Homing

    5.3.1. Select serial interface

    5.3.2. SLIDEKIT type selection

    5.3.3. Homing execution

6. Toolbar

Move SLIDEKIT manually by using the "MOVE –" and "MOVE +" buttons

Or

Move SLIDEKIT to a desired position by typing in the desired position and use the "MOVE" button.

7. Installation tab

7.1. 7.1. Safty I/O installation To activate the SLIDEKIT, the safety I/O must be configured correctly in the UR environment. In the Safety section of the Installation tab, set the relevant safety output to 'System Emergency Stopped'.

Contents

⚠ **WARNING**

Read this manual before installing, operating or maintaining this device. Failure to follow safety precautions and instructions could cause linear module failure and result in serious injury, death or property damage

1.0 General information

These installation instructions describe the setup and operation of SLIDEKIT, a horizontal sliding axis for collaborative robots.

1.1 Information in this manual

This manual provides important information on how to work with the product (also called device or drive) safely and efficiently.

The manual is part of the device, must always be kept in the device's direct proximity and should be available for personnel to read at any time. All personnel working with the device must read and understand this manual before starting any work. Strict compliance with all specified safety notes and instructions is a basic requirement for safety at work.

Moreover, the accident prevention guidelines and general safety regulations applicable at the place of use of the device must also be complied with.

For a better representation of the circumstance of use, the illustrations used are not necessarily to scale and may vary from the actual design of the device.

1.2 Explanation of symbols and signal words

Safety precautions

Safety precautions are identified by symbols and signal words as shown to the right. The signal words indicate the severity of the hazard and the chance it could occur.

Follow these safety precautions and act cautiously in order to avoid accidents, personal injury and damage to property.

⚠ **DANGER**

Indicates a dangerous situation, which will lead to death or serious personal injury, if the precautionary measures are ignored.

⚠ **WARNING**

Indicates a dangerous situation, which can lead to minor or moderate injury or property damage, if the precautionary measures are ignored.

⚠ **CAUTION**

Indicates a dangerous situation, which can lead to minor or moderate injury the precautionary measures are ignored.

NOTICE

Indicates information considered important, but not hazard-related (e.g. messages relating to property damage).
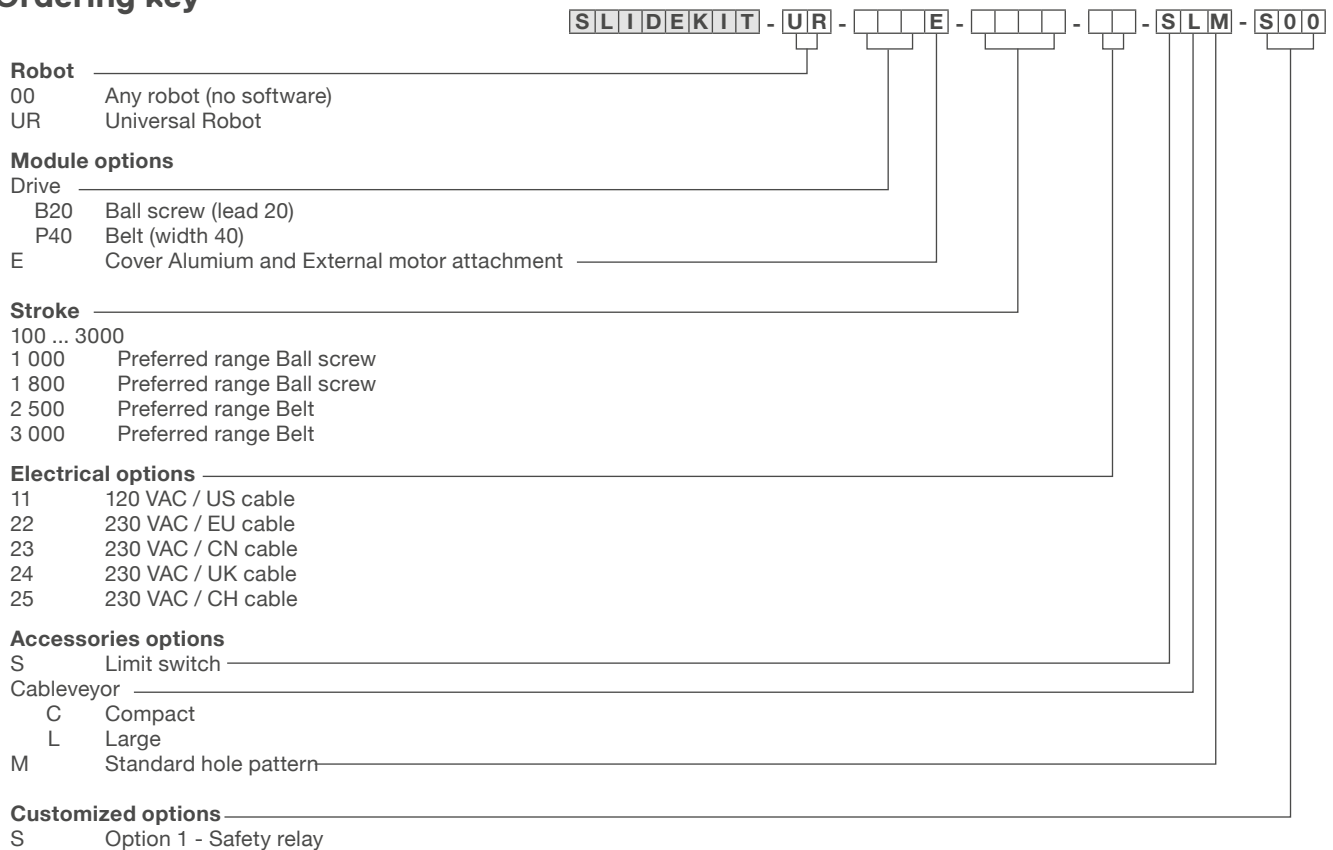
NOTE

Emphasizes useful hints and recommendations as well as information for efficient and trouble-free operation.

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1.3 SLIDEKIT designations

SLIDEKIT contains a Linear module, a controller and additional accessories enabling easy integration with a collaborative robot. Different product configurations are available, according to the product ordering key.

Ordering key

S L I D E K I T - U R - ☐☐☐ E - ☐☐☐☐ - ☐☐ - S L M - S 0 0

Robot
00   Any robot (no software)
UR   Universal Robot

Module options
Drive
   B20   Ball screw (lead 20)
   P40   Belt (width 40)
E   Cover Alumium and External motor attachment

Stroke
100 ... 3000
1 000   Preferred range Ball screw
1 800   Preferred range Ball screw
2 500   Preferred range Belt
3 000   Preferred range Belt

Electrical options
11   120 VAC / US cable
22   230 VAC / EU cable
23   230 VAC / CN cable
24   230 VAC / UK cable
25   230 VAC / CH cable

Accessories options
S   Limit switch
Cableveyor
   C   Compact
   L   Large
M   Standard hole pattern

Customized options
S   Option 1 - Safety relay

1.4 Related documents

This instruction manual does not replace the operating manuals of the included products but adds additional instructions relevant to the setup and operation of the SLIDEKIT system related to collaborative robots.

For general information and safety instructions please refer to installation, operation and maintenance manuals available at **www.ewellix.com**

• CLSM Linear module
• Linear modules - CLSM Installation, operation and maintenance manual.

1.5 Target audience

This manual is intended for technical personnel and authorized users who use and install SLIDEKIT in their application. This manual and the corresponding operating manuals should always be kept available for reference.

Qualified personnel can carry out assigned work and to recognize and prevent possible dangers self-reliantly due to its professional training, knowledge and experience as well as profound knowledge of applicable regulations.

2.0 Safety

This section provides some safety aspects supplementary to the safety aspects described in the relevant operating manuals of the included devices. Failure to comply with the guidelines and safety instructions contained in this manual may result in serious hazards that could cause possible serious injury or death or damage to the device or equipment.

The listed safety aspects must be reviewed and taken into account in the final application risk assessment prior to the use of SLIDEKIT.

2.1 Intended use

SLIDEKIT has been designed and built for the intended use as described in the operating manual of the linear module, with additional intended use defined as sliding of a robot to extend its operating range in an industrial environment.

Any use that extends beyond the intended use or a use different than the one described above is deemed misuse.

Any type of claims resulting from damage caused by misuse are excluded.

2.2 Functional safety

The SLIDEKIT system is not a functional safety system compliant with EN ISO 13489-1 or IEC 62061. To integrate the SLIDEKIT into a functional safety chain, external safety devices must be added to the overall system

2.3 Safety mechanisms

The following measure have been integrated in SLIDEKIT to reduce the risk of harm or damage

- Pinching risk between the carriage and the end block of SLIDEKIT is minimized.
- The SLIDEKIT controller must be connected to the Universal Robot (UR) safety IO to operate. Activation of the UR emergency stop will trigger a stop of the controller via 2 safety relays, certified ISO 13849-1. If the UR system is turned off, SLIDEKIT cannot be operated.
- The SLIDEKIT controller checks the CANopen connection to the UR controller. If this connection is lost, the linear module movement is automatically stopped.
- Stopping or failure of the UR software send a stop signal to the SLIDEKIT controller.

2.4 Application notes

- Integration with an emergency-stop is required for its intended use.
- Install emergency stop functions for the linear module and integrate them into the safety chain of the complete system prior to operating SLIDEKIT.
- The emergency stop function must be connected in such a way that a disruption of the power supply or the activation of the power supply after a power disruption cannot cause a hazardous situation for persons and objects.
- The emergency-stop systems must always be freely accessible.
- To integrate SLIDEKIT into a functional safety system with a STO (Safe Torque Off) safe condition, an external safety relay must be connected to the SLIDEKIT controller power supply, triggered by a functional safety function, such as the UR safety IO.

2.5 Potential risks

The following risks during the SLIDEKIT operation must be considered in an application specific risk assessment

- SLIDEKIT does not detect an impact automatically and does not stop movement upon impact.
  This can lead to:
  - Crushing of a person or an object in the path of the linear module, causing significant harm
  - Dynamic impact to a person or an object causing significant harm
- The SLIDEKIT movement does not stop at the desired position and the UR control software does not recognize this
  - Movement of the robot can occur at a different position than intended, causing significant harm or damage.

3.0 SLIDEKIT components

3.1 Scope of delivery

1. 1 Linear module (with motor)
2. 1 Attachment plate for UR3/UR5/UR10/UR16 & LIFTKIT
3. 1 SLIDEKIT Control Box
4. 1 Main power cable (1,5 m)
5. 1 Motor Power cable (3 m) [1]
6. 1 CANopen Interface cable (3 m) [1]
7. 1 Promixity Switch #1, #2 cable (3 m)
8. 1 Safety-I/O cable (3 m) [1]
9. 1 Cobot Interface cable (3 m) [1]
10. 1 Digital – I/O Interface cable (3 m) [2]
11. 1 USB stick with URCaps software
12. Cableveyor
13. 2 limit switch with sockets
14. 8 Screws M6 for UR3 robot / LIFTKIT (M6 x 20L)
15. 4 Screws M8 for UR5/UR10/UR16 robot (M8 x 25L)
16. 2 pins Ø 5 mm to align UR3 robot (Ø 5 x 10L)
17. 2 pins Ø 8 mm to align UR5/UR10/UR16 robot (Ø 8 x 16L)
18. 2 pins Ø 6 mm to align LIFTKIT (Ø 6 x 12L)

[1] Other cable lengths available on request.
[2] Options

3.2 System requirements

- Robot compatibility: UR3, UR5, UR10, UR16, UR3e, UR5e, UR10e, UR16e
- UR controller: minimum CB 3.1 is required for the URCaps plugin
- Polyscope: Polyscope 3.6 or higher
- Power input capacity (at rated load) : 120 to 230 V AC, 0.9 K VA
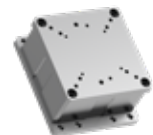
SLIDEKIT 2.0 contains

Teach pendant not included

Robot attachment plate
(The taps are only provided for Universal Robots cobot as standard)

UR software plugin
(not included in SLIDEKIT-00)

CLSM Linear module

Control unit

CAN   D-SUB 9Pin   Digital IO   Motor Power   Proximity Switch

4.0 Mechanical installation
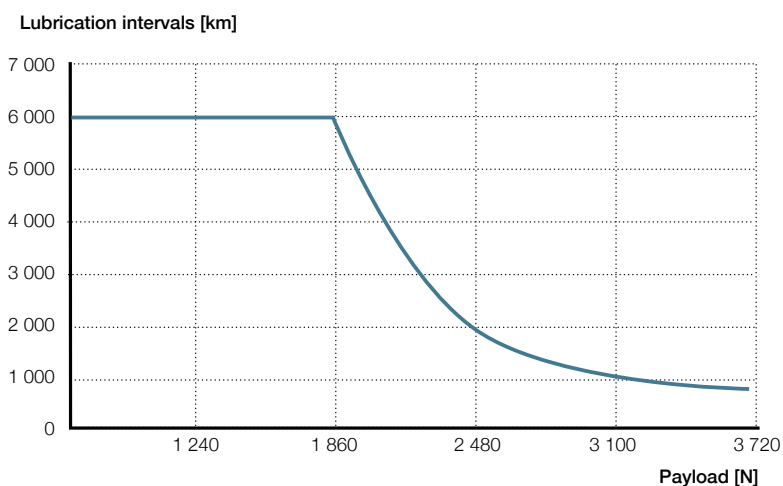
4.1 Tools required

• 5 mm & 6 mm wrench

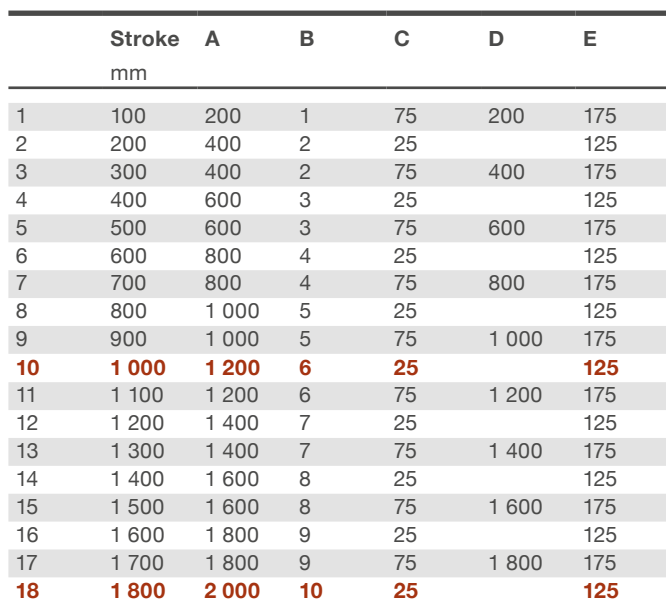## 4.2 Robot installation on the linear module

1. Take SLIDEKIT out of the box

2. For mounting to SLIDEKIT, attach the bottom plate with M6 bolts (not included) to the SLIDEKIT base plate. SLIDEKIT should be supported by its entire length or at least every 300 mm by clamping unit or bolt.

3. Insert the 2 alignment pins on the top plate (Ø 6 mm for UR3, Ø 8 mm for UR5/10/16, Ø 6 mm for LIFTKIT)

4. Align the robot or SLIDEKIT with the alignment pins and fix the robot base with the four bolts provided or SLIDEKIT base with the eight blots provided.

4.3 Lubrication intervals

Under normal operating condition, v≤ 1 m/s, travel under Fm ≤ 0,3 c. Inject grease 4,08 cm2 according to condition as shown in the graph below.
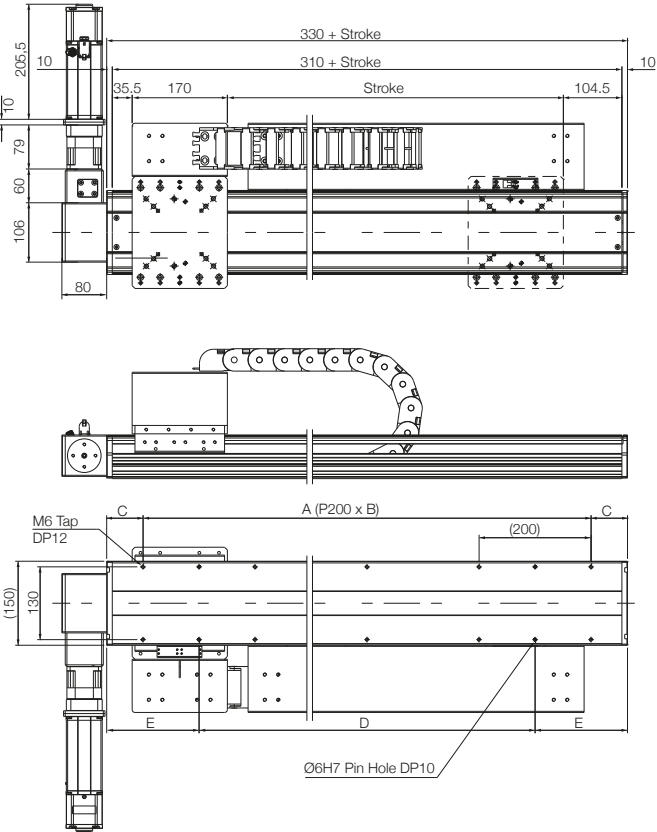
Lubrication intervals [km]

Payload [N]

Dimensional drawing

Ball Screw version

SLIDEKIT-00

For LIFTKIT
4x2 - M6
Tap Thru

For any Robot

SLIDEKIT-UR

For LIFTKIT
and UR Robot

UR10, 16
UR5
UR3

For UR Robot

UR10, 16
UR5
UR3

Side T Slot
(Both Sides)

Side T Slot
(Both Sides)

320 + Stroke
300 + Stroke
92,5   170   Stroke   37,5
205,5
10,5

M6 Tap DP12
A (P200 x B)   C
(200)

Ø6H7 Pin Hole DP10

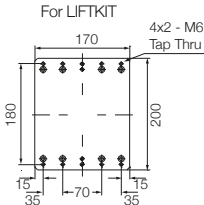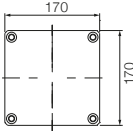|	Stroke	A	B	C	D	E
	mm					
1	100	200	1	75	200	175
2	200	400	2	25		125
3	300	400	2	75	400	175
4	400	600	3	25		125
5	500	600	3	75	600	175
6	600	800	4	25		125
7	700	800	4	75	800	175
8	800	1 000	5	25		125
9	900	1 000	5	75	1 000	175
10	**1 000**	**1 200**	**6**	**25**		**125**
11	1 100	1 200	6	75	1 200	175
12	1 200	1 400	7	25		125
13	1 300	1 400	7	75	1 400	175
14	1 400	1 600	8	25		125
15	1 500	1 600	8	75	1 600	175
16	1 600	1 800	9	25		125
17	1 700	1 800	9	75	1 800	175
18	**1 800**	**2 000**	**10**	**25**		**125**

Standard stroke

Belt version

SLIDEKIT-00

For LIFTKIT

4x2 - M6
Tap Thru
170
180
200
15 70 15
35 35

For any Robot

170
170

SLIDEKIT-UR

For LIFTKIT
and UR Robot

170
180
200
UR10, 16
UR5
UR3

For UR Robot

170
170
UR10, 16
UR5
UR3

205.5
10
330 + Stroke
310 + Stroke
10
70
79
60
106
35.5 170 Stroke 104.5
80

M6 Tap DP12
C
A (P200 x B)
C
(200)
(150) 130
E D E

Ø6H7 Pin Hole DP10

200
172
170
160
32
65
15
150
Side T Slot
(Both Sides)
5.2
7.9
6

200
172
170
160
95
15
80
150
Side T Slot
(Both Sides)
5.2
7.9
6

|	Stroke	A	B	C	D	E
	mm					
10	1000	1200	6	65	1000	165
11	1100	1200	6	115	1000	215
12	1200	1400	7	65	1200	165
13	1300	1400	7	115	1200	215
14	1400	1600	8	65	1400	165
15	1500	1600	8	115	1400	215
16	1600	1800	9	65	1600	165
17	1700	1800	9	115	1600	215
18	1800	2000	10	65	1800	165
19	1900	2000	10	115	1800	215
20	2000	2200	11	65	2000	165
21	2100	2200	11	115	2000	215
22	2200	2400	12	65	2200	165
23	2300	2400	12	115	2200	215
24	2400	2600	13	65	2400	165
25	**2500**	**2600**	**13**	**115**	**2400**	**215**
26	2600	2800	14	65	2600	165
27	2700	2800	14	115	2600	215
28	2800	3000	15	65	2800	165
29	2900	3000	15	115	2800	215
30	**3000**	**3200**	**16**	**65**	**3000**	**165**

Standard stroke

5.0 Electrical connection

1. Connect the main power cable (**cable 7**) to the SLIDEKIT controller in connection MAIN POWER (**7**)

2. Connect the two connectors of the Motor power (**cable 6**) and CANopen Interface (**cable 5**) cables in connector (**6**), (**5**) of the SLIDEKIT controller

3. Digital-I/O cable (**cable 4**) is a cable required for external I/O control, which is connected to the in connector (**4**) (use only for SLIDEKIT-00 version)

4. Connect the cobot Interface (**cable 3**) in connector (**3**)

5. Connect the safety-I/O cable (**cable 2**) in connector (**2**)

6. Connect the promiity switch cable (**cable 1**) in connection (**1**)

7. Plug in Cobot Interface cable (**cable 3**) to UR controller USB port (**8**)

8. Attach the safety-I/O cable (**cable 2**) to a safety DO on the UR controller

NOTE

The safety I/O has to be configured in the Safety menu of the Installation tab. Follow the instructions in **Chapter 7.1.1**
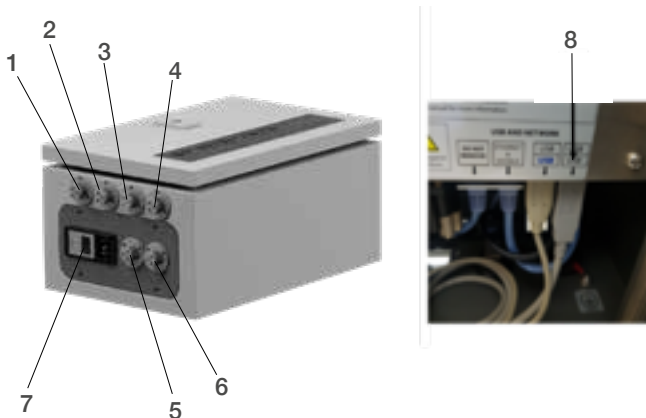
1. promixity Switch #1, #2 cable
2. Safety-I/O cable
3. Cabot Interface Cable
4. Digital-I/O cable
5. CANOpen Interface Cable
6. Motor Power cable
7. Main power cable
8. UR Controller USB port
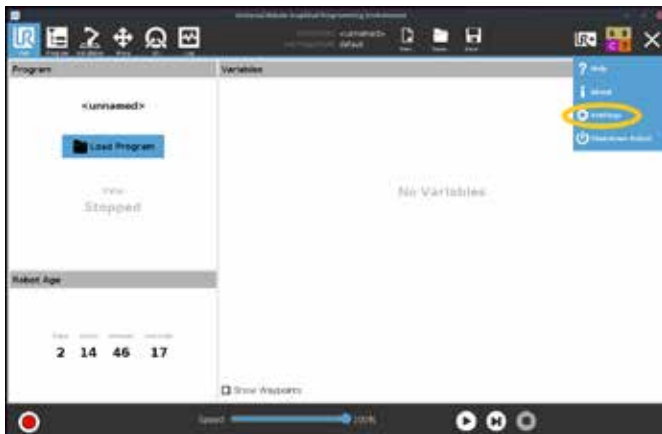
6.0 Software Installation

The software screencaps shown use the e-Series design. Functionality on the CB-Series is similar but might have a different appearance.

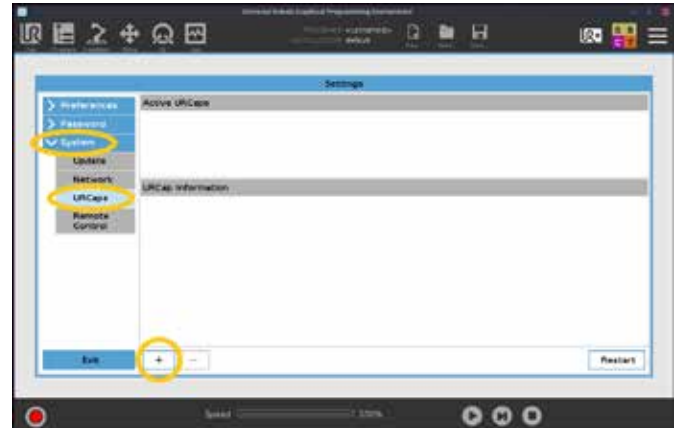To install the SLIDEKIT URCaps, follow the described steps:

1. Click the hamburger menu in the top right corner.
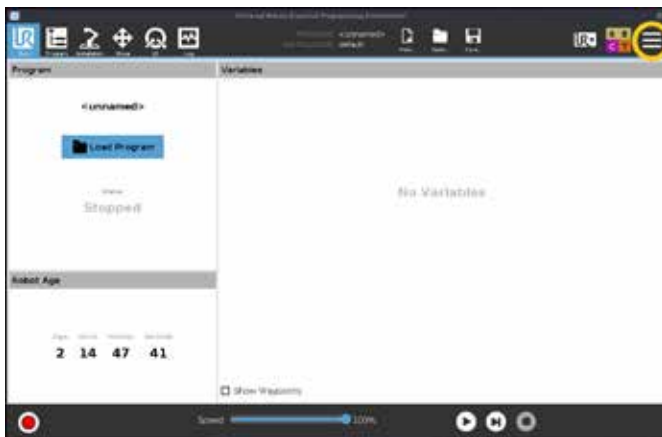
2. Click settings.

3. Go to System ⤷ URCaps and press +

4. Insert the SLIDEKIT USB Drive into the USB port at the teach pendant, choose the URCaps file from the SLIDEKIT USB drive, then press "Restart".

7.0 Software operation

The SLIDEKIT URCaps enables movement of SLIDEKIT directly in the UR Polyscope environment. When going into programming mode in Polyscope, the SLIDEKIT setup can be accessed through the installation tab. The movement of SLIDEKIT can then be accessed directly in the Program tab.

7.1 SLIDEKIT Installation

To access the installation tab, go to Installation ↳ URCaps ↳ SLIDEKIT.

The SLIDEKIT installation screen allows to set up three aspects of the SLIDEKIT operation:

1. Safty I/O setup on UR
2. Communication
3. SLIDEKIT Setup
4. Position Setup
5. Toolbar

NOTE

Save the installation file to keep the values after restart.

7.1.1 Safety I/O setup on UR

To activate SLIDEKIT, the safety I/O must be configured correctly in the UR environment. In the Safety section of the Installation tab, set the relevant safety output to "System Emergency Stopped".

7.1.2 Communication

- Serial interface: Select the correct serial interface on the UR controller. In case other devices are connected, select a free serial port.
- Daemon port: Select a daemon port that is not used by another URCaps. If the same port is used for different URCaps, communication problems might occur and SLIDEKIT cannot operate normally.

7.1.3 SLIDEKIT Setup

- SLIDEKIT type: Select the correct SLIDEKIT from the dropdown menu. You can choose SK 20x20 BG65S.
- By selecting a wrong configuration, a normal operation of SLIDEKIT cannot be guaranteed. If the linear module has been initialized correctly, the maximum stroke accessible is displayed underneath. Check that this value corresponds with the product connected.
- With the HOMING button, a new homing can be started. During the homing process all other functions are blocked. The slide automatically moves first to the limit switch close the motor, then to the limit switch on the other side.
- Virtual limits can be set to limit the SLIDEKIT movement. They can set following the rule: 0 mm ≤ Virtual MIN < Virtual Max ≤ Available Stroke.

7.1.4 Position Setup

- With the Move- and Move+ buttons you can move SLIDEKIT manually while pressed

- Fill out the default motion profile parameters velocity, acceleration and deceleration. These values are set at each step of the program.

- The value for velocity can be set up to 1 000 mm/s. However, the max velocity for the different SLIDEKIT lengths are as follow:

Performance diagram
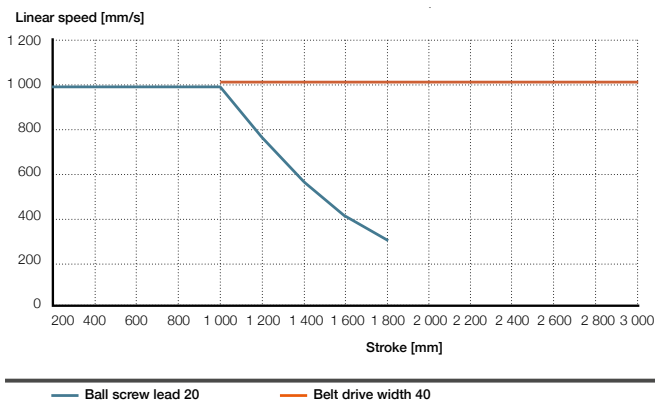
7.1.5 Toolbar

- Access the toolbar by clicking on the UR+ icon in the right top corner. It gives you the opportunity to move SLIDEKIT manually by using the "MOVE –" and "MOVE +" buttons or to move SLIDEKIT to a desired position by typing in the desired position and use the "MOVE" button.

7.2 Program note

7.2.1 Insert a URCap command

- To insert a new command, go to Program ↳ URCaps ↳ SLIDEKIT
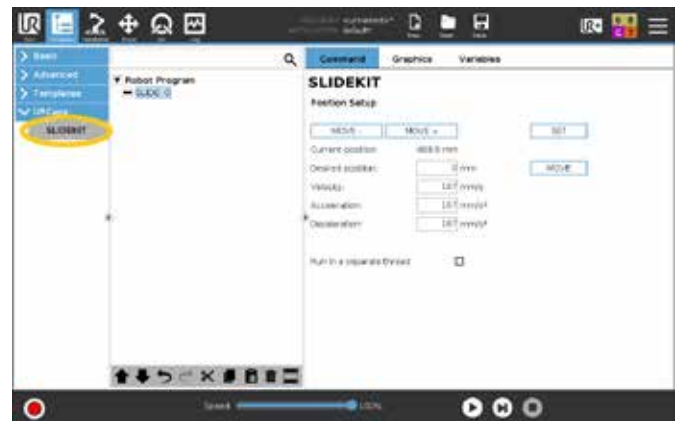
- **Using MOVE buttons**
  You can move SLIDEKIT manually by using the "MOVE –" and "MOVE +" buttons or to move SLIDEKIT to a desired position by typing in the desired position and use the "MOVE" button.

- **Change motion profile parameters**
  For each step that is inserted, the default motion profile parameters are used, that are set in the installation tab. However, for each step the parameters can be changed.

- **Run in a separated thread**
  By clicking this option, the movement will happen in parallel to the rest of the program. However, two movements cannot be executed at the same time. The program blocks at the next movement command until the previous movement is finished.
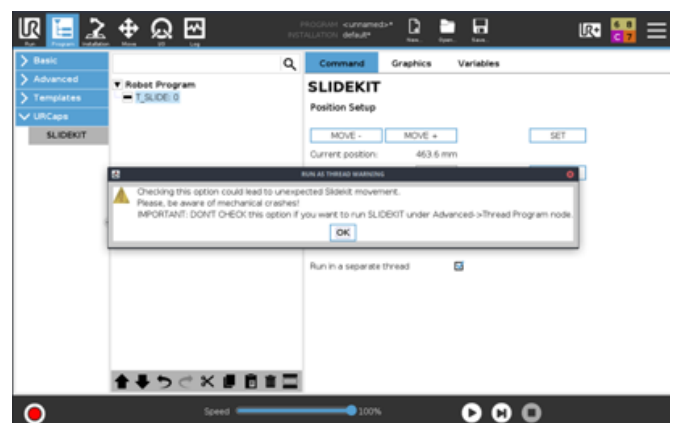
📋 **NOTE**

Be aware, that checking this option could lead to unexpected SLIDEKIT movements.

📋 **NOTE**

Don't check this option if you want to run SLIDEKIT Advanced ↳ Thread.

7.2.2 Script calls (only for advanced users)

- Beside using the URCap command, there is a possibility to use script commands.

get_SLIDEKIT_check_connection()

  - returns True if SLIDEKIT connection status is established, else False.

get_SLIDEKIT_is_moving()

  - returns True if SLIDEKIT is moving, else False.

get_SLIDEKIT_reached_position()

  - returns True if SLIDEKIT reached is position, else False.

get_SLIDEKIT_position()

  - returns the actual SLIDEKIT position in float point value with one decimal place.

get_SLIDEKIT_actual_current()

  - returns the actual current of SLIDEKIT in milliamperes.

move_SLIDEKIT(position, velocity, acceleration, deceleration)

  - moves SLIDEKIT to the desired position using motion profile parameters.
  - This command is blocking until SLIDEKIT reaches its position.

8.0 Appendix

8.1 Controller

Dimensions	
300	260
200	150
	160

Switch #1 (Home)
Switch #2 (+Limits)
Safety-I/O
Cobot Interface
Digital-I/O
4-Ø8,5
(Control unit mount hole)

Wall mount bracket
RS stock no..:842-8471

Bracket: 4EA
Bolt: 4EA
Nut: 4EA

CANopen Interface
Motor Power
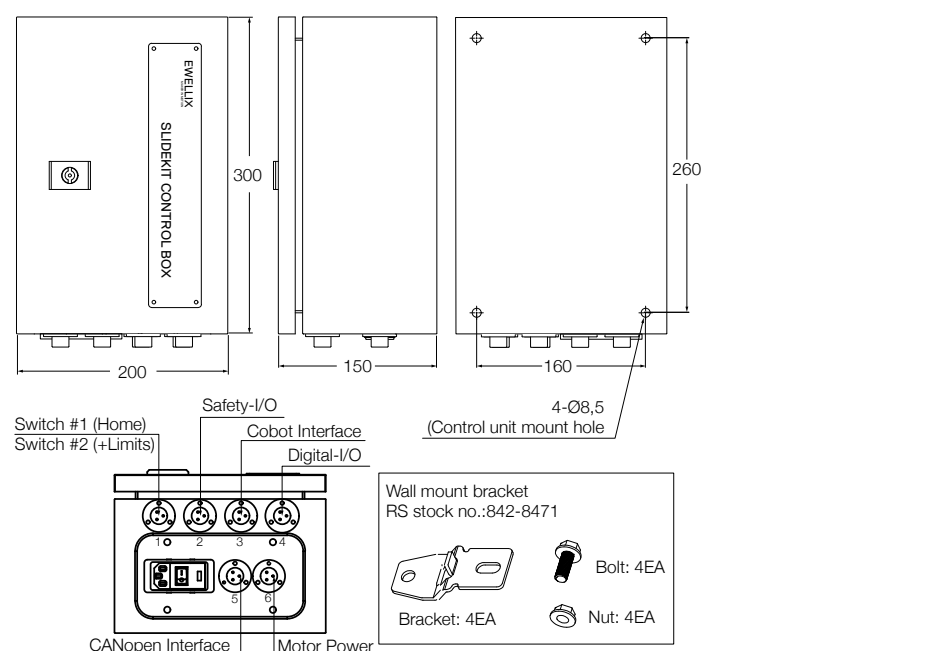
8.2 Limit switch

- EE-SX674P-WR 1M

PNP Output

Model	Output configuration	Timing charts	Terminal connections	Output circuit
EE-SX67☐P EE-SX67☐P-WR	Light-ON	Incident / Interrupted; Light indicator (red) ON/OFF; Output transistor ON/OFF; Load (relay) Operates/Releases	Short-circuited between ⊕ terminal and positive ⊕ terminal	Light indicator (red); Main circuit; Out; IC; Load; 5 to 24 VDC
	Dark-ON	Incident / Interrupted; Light indicator (red) ON/OFF; Output transistor ON/OFF; Load (relay) Operates/Releases	Open between ⊕ terminal and positive ⊕ terminal *1 *2	*The terminal arrangement depends on the model. Check the dimensional diagrams.

Terminal Arrangement

(1)	⊕	Vcc
(2)	L	L*
(3)	OUT	OUTPUT
(4)	⊖	GND (0 V)

* Pin 2 is not used for the EE-SX474.

9.0 SLIDEKIT 2.0 Troubleshooting

9.1 Introduction

This Troubleshooting Guide is intended to provide guidance to the SLIDEKIT 2.0 end users in the detection and correction of programming issues within Polyscope's robot program.

9.1.1 Prerequisites

The SLIDEKIT 2.0 end-users must be experienced with the following:

• Polyscope software.
• SLIDEKIT 2.0 as Polyscope's extension.
• Programming robot program in Polyscope application, with the aspect on The SLIDEKIT 2.0.
• SLIDEKIT 2.0 hardware limitation.
• SLIDEKIT 2.0 functional knowledge.

9.2 Program errors

9.2.1 Connection with SLIDEKIT is not established
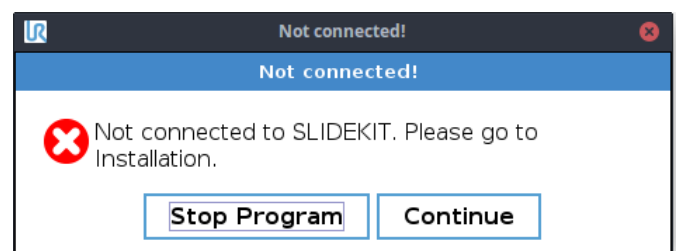
Issue: Program can't run since there is no connection with SLIDEKIT.

Possible causes:

• There is no hardware connection, or it's broken.
• SLIDEKIT is powered off or turned off.

Solution(s):

• Check that hardware connection with SLIDEKIT is not broken.
• Check that SLIDEKIT is powered on and turned on.
• Go to installation node and check that you have selected serial interface and connection with SLIDEKIT is established ("Connected").

9.2.2 SLIDEKIT is not initialized
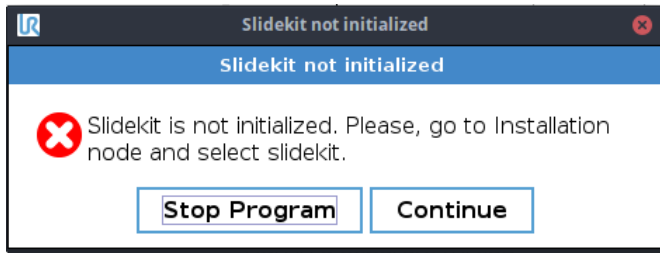
Issue: Program can't run since SLIDEKIT is not initialized.

Possible causes:

- The SLIDEKIT configuration is not selected.
- The SLIDEKIT configuration was selected, but is missing after the SLIDEKIT is updated with the new version.

Solution(s):

- Check that you have selected desired the SLIDEKIT configuration in Installation node.

9.2.3 Homing is not finished
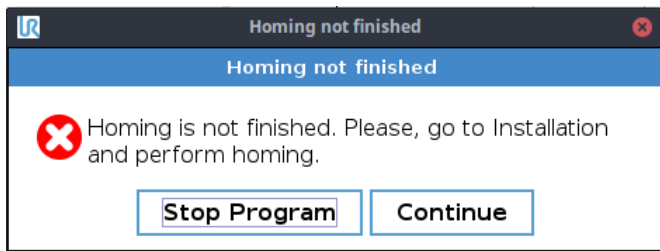

Issue: Program can't run since SLIDEKIT is not calibrated.

Possible causes:

- Homing is NOT PERFORMED (e.g. started but not finished, canceled by the user or there were connection issues during homing procedure, so it's not finished properly and without errors).
- After Polyscope is restarted, the loaded installation file does not contain any information about valid homing (e.g. "first time" homing), or the SLIDEKIT current position is outside the available stroke range (0 – max stroke).
- After Polyscope is restarted, the selected SLIDEKIT configuration is missing (previously selected configuration is not present anymore in the newly loaded *. URCap file).

Solution(s):

- Go to IN and perform homing again. It is highly recommended to save installation after homing procedure is finished.

9.2.4 Invalid virtual limits
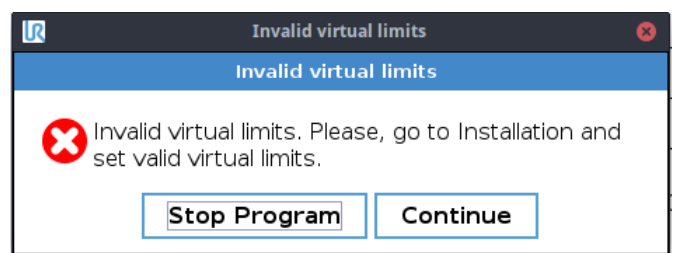
Issue: Program can't run since set virtual limits are not valid.

Possible causes:

- Virtual min and virtual max have been wrongly defined.

Solution(s):

- Go to IN and set virtual min and virtual max properly:
  $0 \leq$ virtual min $<$ virtual max $<$ max available stroke.

9.2.5 Position out of range
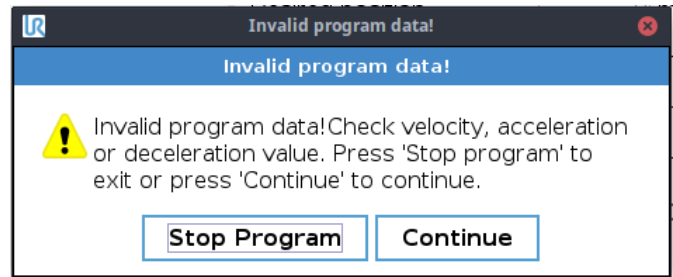
Issue: Program can't run, desired position is out or range.
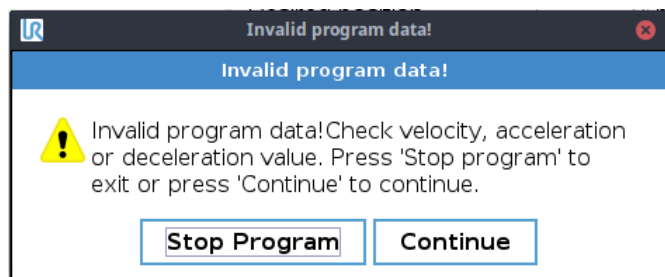
Possible causes:

- Desired position is outside virtual min - virtual max range.

Solution(s):

- S1: go to PN and set desired position to virtual min <= desired position ≤ virtual max.
- S2 (if possible): go to IN and change virtual min/virtual max so it's satisfies condition from S1.

9.2.6 Invalid program data

Issue: Program can't run, entered program data is invalid.
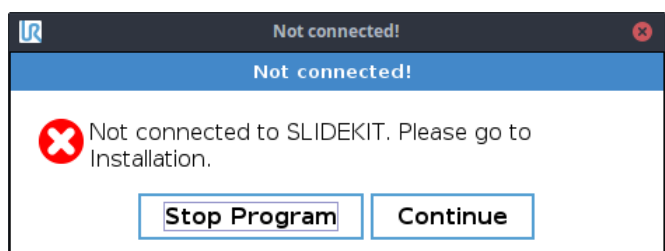
Possible causes:

- Entered program value for velocity is outside min velocity – max velocity range of selected SLIDEKIT configuration.
- Entered program value for acceleration is outside min acceleration – max acceleration range of selected SLIDEKIT configuration.
- Entered program value for deceleration is outside min deceleration – max deceleration range of selected SLIDEKIT configuration.

Solution(s):

- Go to PN and change program value for velocity, acceleration or deceleration to be in appropriate range of selected SLIDEKIT configuration.
- Consider changing SLIDEKIT configuration and perform homing again if selected range does not satisfy your needs.

9.2.7 Not connected to SLIDEKIT

Issue: Same as 9.2 "Connection with SLIDEKIT is not established".

Possible causes:

- Same as 9.2 "Connection with SLIDEKIT is not established".

Solution(s):

- Same as 9.2 "Connection with SLIDEKIT is not established".

9.2.8 Not connected to Polyscope's RTDE

Issue: Program can't run, no connection with Polyscope's service RTDE.

Possible causes:

- RTDE service is failed to start.
- New Polyscope version is installed and Polyscope's RTDE service uses now a different port.
- Bad input/output SLIDEKIT recipe for synchronization with RTDE.
- Not enough resources.

Solution(s):

- Restart Polyscope application. If you still have problem, contact Ewellix.
  https://www.ewellix.com/en/global/page-contacts.

9.2.9 SLIDEKIT has not reached target position

Issue: SLIDEKIT did not reached target position within expected time period.
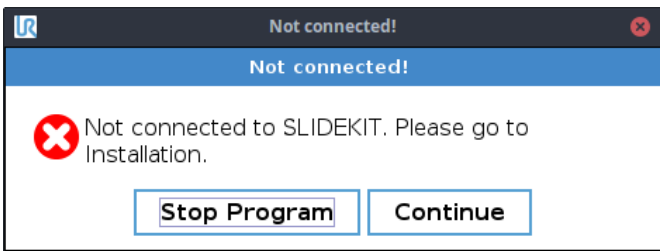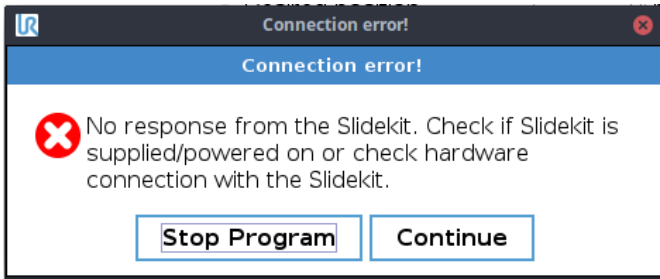
Possible causes:

- Tolerance in selected SLIDEKIT configuration is too short.
- SLIDEKIT did not respond the desired period.

Solution(s):

- Contact Ewellix
  https://www.ewellix.com/en/global/page-contacts.

9.2.10 Disconnection while program is running

Issue: No response in communication with SLIDEKIT.
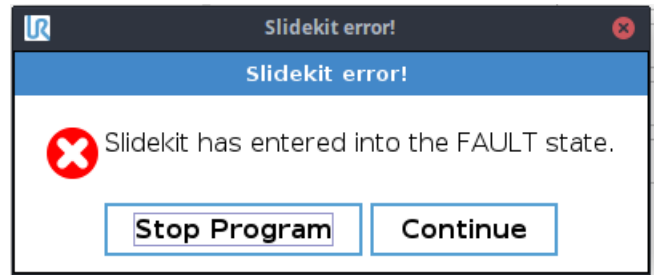
Possible causes:

• Hardware connection is broken.
• SLIDEKIT is powered off or turned off.

Solution(s):

• Check that hardware connection with SLIDEKIT is not broken.
• Check that SLIDEKIT is powered on and turned on.

9.2.11 SLIDEKIT has entered in fault state


Issue: SLIDEKIT has entered the fault state.

Possible causes:

• Desired value for velocity is inside the SLIDEKIT configuration range (configured min velocity – configured max velocity) but outside the SLIDEKIT hardware limitation (the SLIDEKIT min velocity – the SLIDEKIT max velocity). Consequently, selected configuration min-max velocity range does not match to the SLIDEKIT specification min-max velocity range.

• Desired value for acceleration is inside the SLIDEKIT configuration range (configured acceleration min – configured acceleration max) but outside the SLIDEKIT hardware limitation (the SLIDEKIT min acceleration – the SLIDEKIT max acceleration). Consequently, selected configuration min-max acceleration range does not match to the SLIDEKIT specification min-max acceleration range.

• Desired value for deceleration is inside the SLIDEKIT configuration range (configured min deceleration – configured max deceleration) but outside the SLIDEKIT hardware limitation (the SLIDEKIT min deceleration – the SLIDEKIT max deceleration). Consequently, selected configuration min-max deceleration range does not match to the SLIDEKIT specification min-max deceleration range.

• Unknow error that can drive SLIDEKIT to the fault state.

Solution(s):

• Use the right configuration that matches your SLIDEKIT hardware configuration.

• If the configuration is matching the SLIDEKIT hardware configuration, then you probably have a bug in your configuration. Please check that selected SLIDEKIT configuration contains appropriate values (configuration should satisfy hardware specification limits).

9.2.12 Program general exception
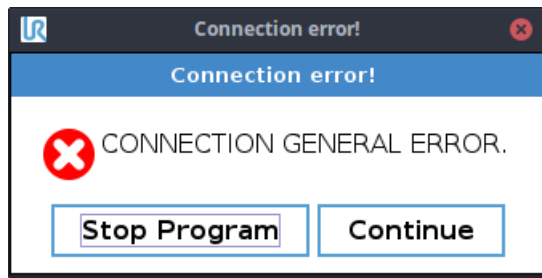
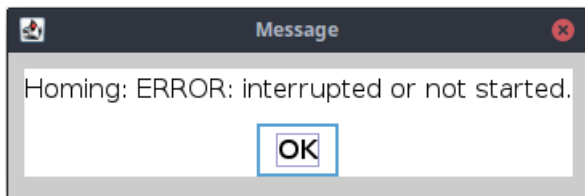**Issue:** General communication error.

Possible causes:

- Connection with SLIDEKIT is not stable, probably there are short connection lost/re-connection

Solution(s):

- Check system resources, restart system
- If problem occurs again, contact Ewellix.

9.3 Homing errors
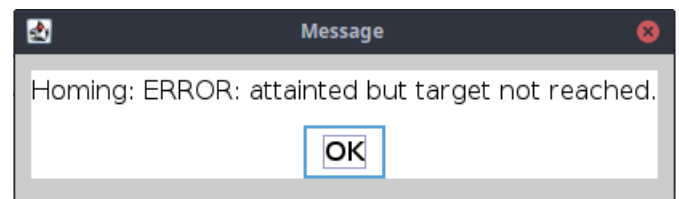
9.3.1 Homing error: interrupted or not started

Issue: Homing procedure is interrupted or not started.

Solution(s):

- Confirm message and try to perform homing again. If problem continues to appear, contact Ewellix. **https://www.ewellix.com/en/global/page-contacts.**

9.3.2 Homing error: attained but target not reached

Issue: Homing procedure is started but target is not reached.

Possible causes:

- Unexpected issue with SLIDEKIT.

Solution(s):

- Confirm message and try to perform homing again. If problem continue to appear, contact Ewellix. **https://www.ewellix.com/en/global/page-contacts**

9.3.3 Homing error: velocity is not zero
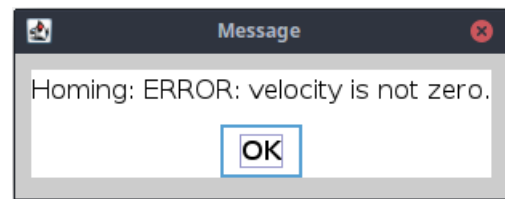
Issue: Homing procedure is stopped automatically.
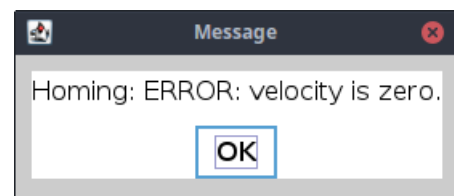
Possible causes:

- Homing parameters defined in the SLIDEKIT configuration are not correct.

Solution(s):

- Confirm message check homing parameters defined in the SLIDEKIT configuration.

9.3.4 Homing error: velocity is zero

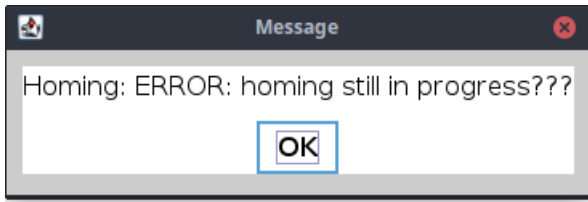**Issue:** Homing procedure is stopped automatically.

Possible causes:

- Homing parameters defined in the SLIDEKIT configuration are not correct.

Solution(s):

- Homing parameters defined in the SLIDEKIT configuration are not correct.

9.3.5 Homing error: homing in progress

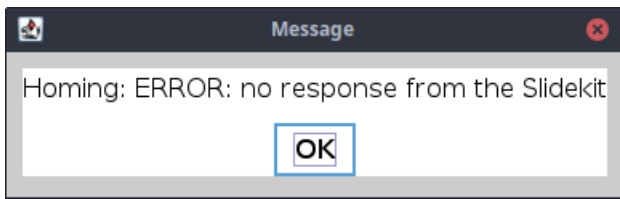**Issue:** Homing procedure is finished, but the message means it's still in progress.

Possible causes:

• Implementation issue.

Solution(s):

• Contact Ewellix
  https://www.ewellix.com/en/global/page-contacts.

9.3.6 Homing error: no response from the motor

**Issue:** No response from SLIDEKIT during homing procedure.

Possible causes:

• There is no hardware connection, or it's broken.
• SLIDEKIT is powered off or turned off.
• Communication issues with SLIDEKIT.

Solution(s):

• Check that hardware connection with SLIDEKIT is not broken.
• Check that SLIDEKIT is powered on and turned on.

• If previous two are satisfied, try to perform homing again.

9.3.7 Homing error: unknown error
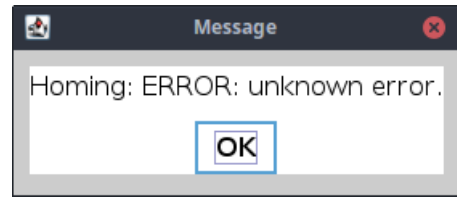
Issue: Homing procedure isn't finished, unknown error occurred.

Possible causes:

• Unhandled exception.

Solution(s):

• Contact support
  https://www.ewellix.com/en/global/page-contacts.

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