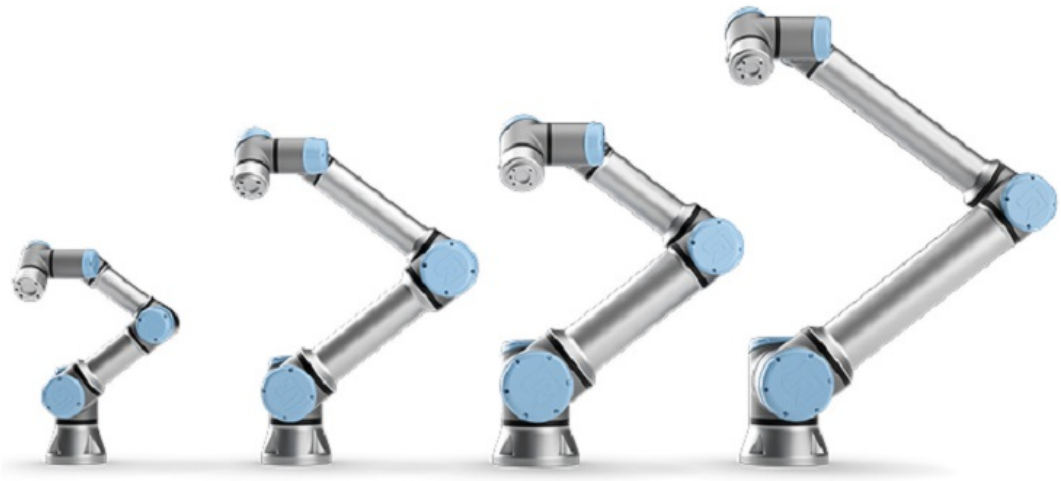
UNIVERSAL ROBOTS



Dashboard Server Remote Control Interface

e-Series

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1. Dashboard Server Remote Control Interface e-Series

The dashboard server can be used to:

- Load and play programs
- power on and brake release
- query robot status
- set operational mode

1.0.1. Unlock Protective Stop

If the robot is locked due to a protective stop, you can unlock the robot using the Dashboard Server and entering the command: "Unlock Protective Stop".

If you have more than 50 protective stops on one joint (including these error codes; C153-C157-C158-C159) within 8 hours, the software will trigger: 163: TOO_FREQUENT_PROTECTIVE_STOPS.

Each joint has a separate counter for each protective stop, and when a counter reaches 50 protective stop on one joint for one type of protective stop, then you will see the error message 163: TOO_FREQUENT_PROTECTIVE_STOPS.

If you trigger: 163: TOO_FREQUENT_PROTECTIVE_STOPS, you have to wait at least 5 seconds, before you can unlock the robot by using the Dashboard Server. This has been enabled inorder to make the user aware of exessive protective stops of one type of protective stop on one joint.

There is only a 5s delay on 163: TOO_FREQUENT_PROTECTIVE_STOPS. All other protective stop can be unlocked immediately.

Command	Return value	Description	Only Remote Control	Supported in version
load <program.urp>	On success: • "Loading program: <program.urp>" On Failure: • "File not found: <program.urp>" • "Error while loading program: <program.urp>"	Returns when both program and associated installation has loaded (or failed). The load command fails if the associated installation requires confirmation of safety. The return value in this case will be 'Error while loading program'.	x	5.0.0

play	On success: • "Starting program" On failure: • "Failed to execute: play"	Returns failure if the program fails to start. In previous versions this did not happen in all cases.	x	5.0.0
stop	On success: • "Stopped" On failure: • "Failed to execute: stop"	Returns failure if the program fails to stop. In previous versions this did not happen in all cases..	x	5.0.0
pause	On success: • "Pausing program" On failure: • "Failed to execute: pause"	Returns failure if the program fails to pause. In previous versions this did not happen in all cases.	X	5.0.0
quit	"Disconnected"	Closes connection		5.0.0
shutdown	"Shutting down"	Shuts down and turns off robot and controller		5.0.0
running	"Program running: true" OR "Program running: false"	Execution state enquiry		5.0.0
robotmode	text is returned "Robotmode: <mode>", where <mode> is • NO_CONTROLLER • DISCONNECTED • CONFIRM_SAFETY • BOOTING • POWER_OFF • POWER_ON • IDLE • BACKDRIVE • RUNNING	Robot mode enquiry		5.0.0
get loaded program	"Loaded program: <path to loaded program file>" OR "No program loaded"	Which program is loaded		5.0.0

popup <popup-text>	"showing popup"	The popup-text will be translated to the selected language, if the text exists in the language file		5.0.0
close popup	"closing popup"	Closes the popup		5.0.0
addToLog <log-message>	"Added log message" Or "No log message to add"	Adds log-message to the Log history		5.0.0
isProgramSaved	"true <program.name>" OR "false <program.name>"	Returns the save state of the active program and path to loaded program file.		5.0.0
programState	"STOPPED" if no program is running "PLAYING" if program is running "PAUSED" if program is paused	Returns the state of the active program and path to loaded program file, or STOPPED if no program is loaded		5.0.0
PolyscopeVersion	version number, like "URSoftware 5.12.0.1101319 (Mar 22 2022)"	Returns the version of the Polyscope software		5.0.0
version	Software marketing version like "5.13.0"	Returns the marketing version of the software installed on the robot		SW 6

set operational mode <mode>, where <mode> is • manual • automatic	"Setting operational mode: <mode>" OR "Failed setting operational mode: <mode>" • *manual* = Loading and editing programs is allowed • *automatic* = Loading and editing programs and installations is not allowed, only playing programs If this function is called the operational mode cannot be changed from PolyScope, and the user password is disabled.	Controls the operational mode. See User manual for details. Warning: This functionality is intended for using e.g. Ethernet based Key Card Readers to switch operational modes. The device for switching operational mode should be placed in vicinity to the robot.		5.0.0
get operational mode	MANUAL, AUTOMATIC or NONE	Returns the operational mode as MANUAL or AUTOMATIC if the password has been set for Mode in Settings. Returns NONE if the password has not been set.		5.6.0
clear operational mode	"operational mode is no longer controlled by Dashboard Server" If this function is called the operational mode can again be changed from PolyScope, and the user password is enabled.			5.0.0
power on	"Powering on"	Powers on the robot arm	x	5.0.0
power off	"Powering off"	Powers off the robot arm	x	5.0.0
brake release	"Brake releasing"	Releases the brakes	x	5.0.0

safetymode (deprecated)	Safetymode: <mode>", where <mode> is • NORMAL • REDUCED • PROTECTIVE_STOP • RECOVERY • SAFEGUARD_STOP • SYSTEM_ EMERGENCY_STOP • ROBOT_ EMERGENCY_STOP • VIOLATION • FAULT	Safety mode inquiry. A Safeguard Stop resulting from any type of safeguard I/O or a configurable I/O three position enabling device result in SAFEGUARD_STOP. This function is deprecated. Instead, use 'safetystatus'.		5.0.0
safetystatus	"Safetystatus: <status>", where <status> is • NORMAL • REDUCED PROTECTIVE_STOP • RECOVERY SAFEGUARD_STOP • SYSTEM_ EMERGENCY_STOP • ROBOT_ EMERGENCY_STOP • VIOLATION • FAULT • AUTOMATIC_MODE_ SAFEGUARD_STOP • SYSTEM_THREE_ POSITION_ ENABLING_STOP	Safety status inquiry. This differs from 'safetymode' by specifying if a given Safeguard Stop was caused by the permanent safeguard I/O stop, a configurable I/O automatic mode safeguard stop or a configurable I/O three position enabling device stop. Thus, this is strictly more detailed than 'safetymode'.		5.4.0

unlock protective stop	On success: • "Protective stop releasing" On failure: • "Cannot unlock protective stop until 5s after occurrence. Always inspect cause of protective stop before unlocking"	Closes the current popup and unlocks protective stop. The unlock protective stop command fails if less than 5 seconds has passed since the protective stop occurred.	x	5.0.0
close safety popup	"closing safety popup"	Closes a safety popup	x	5.0.0
load installation <default.installation>	On success: • "Loading installation: <default.installation>" On failure: • "File not found: <default.installation>" • "Failed to load installation: <default.installation>"	Loads the specified installation file but does not return until the load has completed (or failed). The load command fails if the associated installation requires confirmation of safety. The return value will be 'Failed to load installation'.	x	5.0.0

restart safety	"true" or "false"	Used when robot gets a safety fault or violation to restart the safety. After safety has been rebooted the robot will be in Power Off. IMPORTANT: You should always ensure it is okay to restart the system. It is highly recommended to check the error log before using this command (either via PolyScope or e.g. ssh connection).	x	5.1.0
is in remote control	"true" or "false"	Returns the remote control status of the robot. If the robot is in remote control it returns true and if remote control is disabled or robot is in local control it returns false.		5.6.0
get serial number	Serial number like "20175599999"	Returns serial number of the robot.		5.6.0
get robot model	UR3, UR5, UR10, UR16	Returns the robot model		5.6.0

generate flight report <report type> where possible report types are: • controller • software • system Default Type is 'system' if no option is specified	On success report id is printed. Error Message on a failure. Command can take few minutes to complete.	Triggers a Flight Report of the following type: • Controller - report with information specific for diagnosing controller errors. For example, in case of protective stops, faults or violations. • Software - report with information specific for polyscope software failures. • System - report with information about robot configuration, programs, installations etc. It is required to wait at least 30 seconds between triggering software or controller reports.		5.8.0

generate support file <Directory path> where <Directory path> represents path to an already existing directory location inside the programs directory. In particular path can point to special usbdisk subfolders inside programs folder.	On success "Completed successfully: <result file name>" is printed otherwise an error message with possible cause of the error is shown. Command can take up to 10 minutes to complete.	Generates a flight report of the type "System" and creates a compressed collection of all the existing flight reports on the robot along with the generated flight report. Result file ur_[robot serial number]_ YYYY-MM-DD_HH-MM-SS.zip is saved inside <Directory path>		5.8.0

2. Dashboard Examples

A few examples of one-liners that, when executed from the pc-cmd terminal, will connect to the dashboard server and return the answer directly in the pc cmd prompt.

Single command request:

```
echo y | plink root@10.54.252.85 -pw easybot "{ echo "get robot model";
echo "quit"; } | nc 127.0.0.1 29999"
```

Multiple commands request:

```
echo y | plink root@10.54.252.85 -pw easybot "{ echo "get serial
number"; echo "get robot model"; echo "safetystatus"; echo "get
operational mode"; echo "quit"; } | nc 127.0.0.1 29999"
```

If requesting more time consuming tasks it may be necessary to add delays between the echoes.

If you want the response written directly to a file for later use or documentation, you can write:

```
echo y | plink root@10.54.252.85 -pw easybot "{ echo "get robot model";
echo "quit"; } | nc 127.0.0.1 29999" > my_dbs_response.txt
```