

# RELEASE NOTES

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Make sure that the firmware of your robot is the one indicated on the cover of this manual, or else consult the manual corresponding to your robot's firmware. Ideally, always use the latest robot firmware.

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## Version 8.4.9

### Fixed

- (ROBOT-2866) Reduce CPU usage of fix for Meca500 for auto-MDIX negotiation with some partner PHY.

## Version 8.4.8

### Fixed

- (ROBOT-2866) Add advanced ethernet option for Meca500 to fix auto-MDIX negotiation with some partner PHY.
- (ROBOT-2929) Fixed problems with R2 robots joint positions that may occasionally be slightly off after homing.

## Version 8.4.7

### Fixed

- (ROBOT-2416) Fix homing on a Meca500R2.
- (ROBOT-2421) Brakes are not always engaged at full strength when drives are deactivated or brakes are re-engaged manually.

## Version 8.4.6

### Fixed

- (ROBOT-1946) Joint torque ratio does not work properly in EtherCAT.
- (ROBOT-2360) Prevent writing to permanent storage during bootup if not required.

## Version 8.4.5

### Fixed

- (ROBOT-1763) Checkpoint events sent too late when SetCheckpoint is used between MovePose commands.
- (ROBOT-1765) Homing fails when joint 6 is near 360 degrees.
- (ROBOT-1779) Expand valid joint ranges for mastering R2 robots.

## Version 8.4.4

### Features

- (ROBOT-1416) New command to enable logging of all API commands and responses to robot log (TCP/IP, EIP and ECAT).

## **Fixed**

- (ROBOT-1377) Monitoring events don't always respect the requested interval.
- (ROBOT-1468) MoveLin gets interrupted by SetGripperVel.
- (ROBOT-1481) Delay command sometimes lasts longer than requested.

## **Version 8.4.3**

### **Fixed**

- (ROBOT-1362) Robot can't recover PStop2 during velocity-mode moves.
- (ROBOT-1371) Debug trace level unexpectedly set back to 3 when ECAT master connects to the robot.
- (ROBOT-1372) Random out-of-workspace or singularity errors during linear moves.

## **Version 8.4.2**

### **Fixed**

- (ROBOT-1266) Gripper not working with R2 robots.
- (ROBOT-1295) Can't deactivate in EtherCAT after failure to reset error.
- (ROBOT-1323) Robot no more responding if new error occurs while clearing previous error.
- (ROBOT-1337) ECAT slave can invert order of status PDO sent to master if using short cycle time.

## **Version 8.4.1**

### **Features**

- (ROBOT-1294) Visible web interface panels can now be chosen while connected in Monitoring mode.

### **Fixed**

- (ROBOT-1247) Ethernet link must remain down until robot is ready to handle EtherCAT frames.

## Version 8.4.0

### Features

- (ROBOT-355) Many new TCP/Web "Get" commands (corresponding to various "Set" commands). See documentation for details.
- (ROBOT-663) Support for moving joint 6 outside  $\pm 180$  degrees with Cartesian moves.
- (ROBOT-708) Support user-defined joint limits (Get/SetJointLimits).
- (ROBOT-1051) Support user-defined torque limits (Get/SetTorqueLimits).
- (ROBOT-1129) Support for real-time monitoring data on port 10001 (joint position, velocity, accelerometer, etc.).
- (ROBOT-1211) Fixed homing timeout over EtherNet/IP with R2 robots.
- New TCP/Web commands (TcpDump, SetRtc, LogTrace)

### Fixed

- (ROBOT-1099) Lower minimum gripper/velocity force limit to 5 percent.
- (ROBOT-1108) Checkpoints are not cleared from FIFO buffer after ClearMove.
- (ROBOT-1137) File descriptor leak (socket) in EIP stack.
- (ROBOT-1233) Possible network configuration file corruption fix.
- (ROBOT-1234) Improve EtherCAT timings (down to 1ms).
- (ROBOT-1286) EtherNet/IP EDS is using 64 bits fields which are incompatible with some PLCs.

## Version 8.3.10

### Improvements

- Robot production improvements.

## Version 8.3.6

### Fixed

- (ROBOT-939) Motion Resumed response should not be sent after Homing or deactivating robot.
- (ROBOT-974) Network settings dialog in web interface may report wrong values.

- (ROBOT-1009) In some situation, autoconf does not choose the closest (least movement) robot configuration upon a MovePose.

## Version 8.3.5-beta



### NOTICE:

Meca500 Revision 2 (R2) are now compatible with this firmware. All the features available on the R3 are now also available for the R2, excepted a few behaviours related to the hardware (homing procedure, joint 6 range)



### WARNING:

A bug in the 6.x firmware prevents the upgrade of the drives when upgrading to 8.x. To work around this problem, please upgrade the robot to 8.x a second time so that all drives are upgraded to the new version.

## Features

- (ROBOT-149) Support for the Ethernet/IP control protocol.
- (ROBOT-699) Precise (1um) Position Control Incremental Move (jogging) in web interface. When using Incremental jogging, standard motion errors will be triggered if the robot reaches a joint limit or a singularity.

## Improvements

- (ROBOT-919) The requirement of pressing the CTRL key to jog with a joystick key has been removed.
- (ROBOT-912) Robot is now rebooted automatically after any firmware upgrades (including drives and external tools).

## Fixed

- (ROBOT-871) If activation fails, robot enters an invalid state where the motors stay activated.
- (ROBOT-918) 0G and brake release doesn't work before a first robot activation.
- (ROBOT-967) Receiving [3000][Connected to Meca500 R3 v8.1.x] message before boot sequence finishes.
- (ROBOT-976) PStop reset does not work in some cases.

## Version 8.1.9

### Fixed

- (ROBOT-385) Cannot reconnect to robot in some cases (reports user already connected while there is none).
- (ROBOT-857) The commands 'ResetError' and 'DeactivateRobot' do not always return a response message.
- (ROBOT-861) The reset error command triggers an EOB response if there is an error to reset.
- (ROBOT-913) Upgrade from certain Beta/RC versions causes calibration parameters to be lost.
- (ROBOT-960) The web interface sends 'MoveJointsVel' even if the robot has reached its destination while jogging in the web portal.

## Version 8.1.8

### Fixed

- (ROBOT-595) SpaceMouse and 3-axis joystick are now supported and update the icon files.
- (ROBOT-826) The web interface does not return the actual network configuration in the setting menu.
- (ROBOT-829) Joint position is offset by one motor turn after doing homing from some positions.
- (ROBOT-845) SetMotionOptions triggers 'Robot is not activated' response.

## Version 8.1.7

### Fixed

- (ROBOT-752) The motion profile of the robot could have an overshoot during acceleration and deceleration if the acceleration is not initialized.
- (ROBOT-766) The robot positions reported in EtherCAT oscillate between the desired and actual position.
- (ROBOT-776) For some motion sequences, the robot stops moving for about 60 seconds once every 71 minutes.



## Version 8.1.6

### Fixed

- (ROBOT-734) Web interface sends a velocity command (with speed 0) when the window is losing focus.
- (ROBOT-744) Robot persistent storage can be corrupted if power is interrupted while the robot was logging an activity trace.

## Version 8.1.5



### WARNING:

This is the first public release of firmware 8. If you are upgrading from firmware 7, please ask us for the migration guide, as there are major changes.

### Fixed

- (ROBOT-697) Incorrect SetGripperForce parameter range in the web interface.

## Version 8.1.4

### Fixed

- (ROBOT-666) A raw TCP/IP connection was wrongfully detected as a WebSocket connection.

### Improvements

- (ROBOT-667) Gripper commands were executed with preceding Cartesian-space motion commands. They are now executed only when the movement is completed, as in firmware 7.
- (ROBOT-668) Modifications were made to the robot joint mode acceleration. Acceleration can now be set at up to 150%.
- (ROBOT-675) Restored the same default acceleration (100%) as in firmware 7.

## Version 8.1.3-rc

### Fixed

- (ROBOT-650) Upload of update image to robot's web interface was blocked.
- (ROBOT-652) Monitoring connections from the web interface were not closed correctly.
- (ROBOT-659) Looping in web interface was not working when using commands that don't make the robot move.

## Version 8.1.2-rc

### Features

- (ROBOT-392) Support for the protective stop 2 (Stop Category 2) in the robot controller.

## Version 8.1.1-rc

### Features

- (ROBOT-495) Cartesian-space movements that require joint rotations of more than 180° are now blocked. This limit can be bypassed with a special command.
- A Jogging toggle button was added in the web interface to switch between jogging and program execution modes.
- (ROBOT-67) Added motion commands allowing velocity-mode control. You can now feed the desired Cartesian or joint velocity to the robot every 2 ms.
- (ROBOT-66) Jogging can now be done using 3Dconnexion's SpaceMouse from the new Joystick tab in the web interface.
- (ROBOT-548) Added the command SetNetworkOptions for setting network parameters.
- (ROBOT-496) Added the command GetFwVersion for obtaining the firmware version.
- (ROBOT-540) Added FIFO Cleared status bit to report when a ClearMotion command has been executed in EtherCAT.
- (ROBOT-403) Added SDO 0x8010 to disable/enable the brakes (when the robot is deactivated) in EtherCAT.
- The message [2007][as,hs,sm,es,pm,eob,eom] is now also sent over port 10,001, but automatically and as soon as the robot status changes.
- Added the command SetCheckpoint.
- (ROBOT-64) Added the command SetMonitoringInterval that changes the refresh

interval on port 10,001.

- A program can now be saved even if the robot is activated and homed.
- Added Request Log tab in the web interface where virtually all commands sent to the robot are now displayed.
- (ROBOT-167) 0G button works in EtherCAT mode as well as when the robot is connected to a computer via the web interface.
- Angular velocity (1A04h), Torque Ratio (1A05h), Accelerometer (1A06h), Gripper Status (1A07h) and Configuration (1A08h) are now available as PDOs in EtherCAT.
- New movement control (Move ID 6015h:1) added in EtherCAT.

## Fixed

- (ROBOT-435) In the web interface, the loop option could cause the program to be sent more than once, even if looping was disabled.
- (ROBOT-600) A Delay command sent immediately after a MoveLin command could generate a longer delay than requested.
- (ROBOT-210) When executing one of the velocity-mode commands with an argument that exceeded its maximum, the robot controller simply replaced the argument with its maximum value instead of generating an error.
- (ROBOT-395) When homing with a joint being close to one of its limits, the robot fell in error mode or the resulting joint position was incorrect.
- (ROBOT-424) Motion commands were sometimes ignored when the cycle time was set to 2 ms in EtherCAT.
- (ROBOT-456-509) The sub-indices EOB, EOM and Paused was always kept high in EtherCAT.
- (ROBOT-450) The command SetOfflineProgramLoop did not return an error message if sent while no program was being saved.
- (ROBOT-480) The TRF and WRF frames were not reset on robot activation.
- (ROBOT-493) Changed the TCP keep-alive timeout from 1 second to 10 seconds to prevent disconnection on packet loss.
- (ROBOT-481) A movement could cause a motion error because the desired acceleration was higher than in the previous firmware version.
- (ROBOT-484) When reconnecting to a robot from the web interface, the existing program was automatically sent for execution.
- The signal EOB was missing when the movement was short.

- (ROBOT-430) Joint 6 was limited to  $\pm 175^\circ$  in the web interface, instead of  $\pm 180^\circ$ .
- The robot did not always recover from error mode.
- Impossible to reconnect when the Ethernet cable was disconnected while the port was open.
- Unit symbols were editable in the web interface.
- The IP address formatting in the web interface was not correct.
- The panels of the web interface did not resize correctly on small monitors.
- Jogging was blocked when a maximum value was reached.
- Names of registers 6030h, 6031h and 6032h in EtherCAT were not correct.

## Improvements

- The Category 2 protective stop is now reset with the command ResetPStop.
- (ROBOT-65) The grip force range for the MEGP25 has been changed to [10%, 100%] from [0%, 100%].
- (ROBOT-107) An input field has been added next to the “Save offline program” button in the web interface for specifying the ID number of the program to be saved.
- The message numbers for joint sets and the pose feedback on the monitoring port (10,001) changed to 2026 and 2027 respectively.
- (ROBOT-125) Each offline program can now store up to 13,000 motion commands.
- For the offline program saving, new response messages (1030, 1031) replace the old ones (3018, 3013).
- (ROBOT-472) The socket latency has been reduced.
- Commands in the Quick Command drop-down list are now in alphabetical order.
- PDOs 1601h, 1602h, 1603h, 1604h, 1605h, 1606h have been removed in EtherCAT.
- Moving communication mode from 7800h to 8000h in EtherCAT.
- Different acceleration affects the blending behavior now.