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Firmware revision history

Revision	Date	Changes
2.19.0	09/12/24	**Optimization**- Absolute position commands without 'short path'. **Optimization**- Enable negative position commands in absolute mode. **Improvement**- Limit the sending of 'MOT_SetTum' command based on the system configuration. **Improvement-** Dual Gimbals- when 'Sync mode' is active and one of the axes is 'Axis off', the mode will switch to 'Outer mode'. **Improvement-** Dual Gimbals- indication if the axes are synchronized. Description can be found in the *'Command and Control API'* document. **Improvement-**Dual Gimbals- Reading and setting the weapon loading range. **Improvement**- New GPS integration with TCP communication, including a new command for changing the device IP address. Description can be found in the *'Command and Control API'* document. **Improvement**- Setting the minimum allowed acceleration value. **Improvement**- Stabilization- enable/disable stabilization for each axis individually. **Improvement**- Stabilization- Possibility to correct angle due to system radius for Tilt/Roll separately. **Fix-** fix the SWLS algorithm in speed mode.
2.18.0	09/09/24	**Improvement**- IMU- Angles and speeds for the pedestal's axis system are calculated using only gyroscope readings. Description can be found in the *'Command and Control API'* document. **Improvement**- Stabilization- is based on these calculated speeds and positions. Feedforward control has also been added to improve stabilization. Description can be found in the *'Command and Control API'* document. **Improvement**- New GPS integration. **Fix**- fix the updating of SWLS error flags in speed mode.
2.17.3	02/09/24	**Fix-** Dual Gimbals- fix the movement of Pan axis when sending a ballistic offset in 'Sync mode'.

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2.17.2	16/07/24	**Fix-** addresses of configuration variables in the controller memory have been changed.
2.17.1	16/07/24	**Improvement-** Dual Gimbals- The option to set a ballistic offset in Sync mode has been added. **Improvement-** Dual Gimbals- Reading the number of bullets and several statuses from 'CapSnap' unit. **Improvement-** The stabilization algorithm was updated: an option to stabilize using two IMUs for higher accuracy, the control loop is based on both position and speed loops, and a rebalance mechanism has been added. Description can be found in the *'Command and Control API'* document. **Fix-** Set the 'system inserted heading' (when 'OVD GPS' flag is set) as PAN load position motor at controller startup.
2.17.0	27/06/24	**Improvement-** Dual Gimbals- 'Boresight' mechanism and its relevant commands were added. In addition, 'Sync mode' settings commands were added. Description can be found in the *'Command and Control API'* document. **Improvement-** LRF – set range and get range commands were added. Description can be found in the *'Command and Control API'* document. **Improvement-** An option to get the incremental position in addition to the absolute position was added. Description can be found in the *'Command and Control API'* document.
2.16.3	03/04/24	**Fix-** Absolute mode in short path while software limit switch is active. For non-absolute systems only.
2.16.2	12/03/24	**Fix-** Added a delay in the SWLS settings, to prevent interruptions to the driver when it saves to its memory. ***Remark- Do not turn off the system until the SWLS commands are complete.***
2.16.1	18/02/24	**Improvement-** Dual Gimbals- *'Inner mode'*, Description can be found in the *'Command and Control API'* document. **Fix-** Enable general operations (such scanning, preset etc.) with each Dual Gimbals mode. **Fix-** Scanning- snake movement.
2.16.0	20/12/23	**Improvement-** Software limit switch- setting the software limit switch handler (controller/driver/both). Activate *'slowdown'* mechanism. Description can be found in the *'Command and Control API'* document.

		Improvement- New error register to indicate if one of the motion operations wasn't completed successfully. Description can be found in the *'Command and Control API'* document. **Improvement**- New Error position indication for absolute mode. Description can be found in the *'Command and Control API'* document. **Improvement-** Set faults in motor error register when communication with driver is lost. **Improvement-** Reading the number of satellites from AN GPS. **Fix-** motor error message.
2.15.1	12/11/23	**Improvement-** Dual Gimbals- '*Sighting In'* mechanism, Description can be found in the *'Command and Control API'* document.
2.15.0	9/11/23	**Improvement-** main operations timing. **Improvement-** optimization the readings from the drivers. **Fix**- Homing on startup (using startup register). **Fix**- Dual Gimbals – absolute movement with software limit switch.
2.14.3	11/10/23	**Improvement**- New MPU IMU integration. **Fix** - Dual Gimbals- software limit switch in Sync mode. **Improvement-** Reading absolute encoder position from the drivers.
2.14.0	6/8/23	**Feature**- Dual gimbals Implementation. Description can be found in the *'Command and Control API'* document. **Improvement**- New Cube drivers' integration. **Improvement**- New AN GPS integration. **Fix-** 'preset' angles in a range of 0 to 360°. **Optimization-** Software limit switch- negative position must be less than the positive limit. **Optimization**- Blocking negative position commands in absolute mode.
2.13.8	23/7/23	**Fix**- Absolute movement with short path. **Fix**- Leveling operation considering the software limit switch.
~~**2.13.7**~~	14/5/23	**Fix**- 'Go To Target' operation for Roll & Tilt systems **Improvement**- Adding filter for IMU readings in stabilization loop. Description can be found in the *'Command and Control API'* document.

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		Issue- Absolute movement with short path Unavailable Firmware
2.13.6	27/4/23	**Fix**- The return opcode of 'get OvdGPS' command. **Fix**- Absolute encoder readings timing. **Feature-** Offset for IMU readings. Description can be found in the *'Command and Control API'* document.
2.13.5	19/3/23	**Fix**- The calculation of Euler angles from IMU readings. **Fix-** Changing the minimum value of stabilization acceleration.
2.13.4	7/12/22	**Fix**- Opcodes of stabilization settings commands.
2.13.3	29/9/22	**Improvement**- Stabilization loop- settings of control type, max error and speed command for position control loop were added. Description can be found in the *'Command and Control API'* document.
2.13.2	30/8/22	**Improvement**- Homing function according to the absolute encoder **Fix**- Using 'General Spd' variable in Leveling operation (instead of fix speed value).
2.13.0	28/8/22	**Feature**- Bootloader implementation **Improvement**- Stabilization loop of Roll & Tilt systems **Fix**- Stop motors in Keepalive mechanism
2.12.6	20/7/22	**Fix**- Software limit switch with reverse axis.
2.12.5	22/6/22	**Improvement**- Software limit switch with absolute encoder. **Fix**- Limiting the number of leveling attempts.
2.12.4	13/6/22	**Improvement**- Targets, Presets, scanning and stabilization operations for one axis systems. **Improvement**- Targets, Presets and scanning operation while stabilization is active.
2.12.3	24/5/22	**Improvement**- Stabilization loop- Roll compensation was added. Description can be found in the *'Command and Control API'* document. **Fix**- Reset VN IMU
2.12.2	31/3/22	**Improvement**- Motion commands while stabilization is active.

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		Fix- Initialization position of Scanning.
2.12.1	21/3/22	**Fix**- Drivers communication for one axis systems.
2.12.0	15/3/22	**Feature**- Keep Alive mechanism. Description can be found in the *'Command and Control API'* document. **Feature**- Startup register. Description can be found in the *'Command and Control API'* document. **Feature**- Set the position range. Description can be found in the *'Command and Control API'* document. **Feature**- Leveling operation. Description can be found in the *'Command and Control API'* document. **Improvement**- Drivers communication- reading motors data. **Fix**- blocking movement commands while one of motion operation is active**.**

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