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| --- | --- | --- | --- | --- | --- | --- |
| Command | Code(dec) | Code(hex) | Description | Request | Response | Pull/Push |
| Forward | 0 | 0x00 | Moves robot forward when manually controlled | 0x00+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Backward | 1 | 0x01 | Moves robot forward when manually controlled | 0x01+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Turn Left | 2 | 0x02 | Rotates the robot left when manually controlled | 0x02+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Turn  Right | 3 | 0x03 | Rotates the robot right when manually controlled | 0x03+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Curve Forward Left | 4 | 0x04 | Curves the robot to the left while moving forward | 0x04+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Curve Backward Left | 5 | 0x05 | Curves the robot to the left while moving backward | 0x05+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Curve Forward Right | 6 | 0x06 | Curves the robot to the right while moving forward | 0x06+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Curve Backward Right | 7 | 0x07 | Curves the robot to the left while moving forward | 0x07+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Increase  Speed | 8 | 0x08 | Increases speed of the robot | 0x08+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Decrease  Speed | 9 | 0x09 | Decreases speed of the robot | 0x09+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Dig | 10 | 0x0A | Commands the robot to start a dig cycle | WIP | None | Pull |
| Dump | 11 | 0x0B | Commands the robot to start a dump cycle | WIP | None | Pull |
| Stop  Movement | 12 | 0x0C | Stop the robot | 0x0C + Padding  (6 Byte Length) | None | Pull |
| Main Arm Up | 13 | 0x0D | Move main excavator arm up | 0x0D+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Main Arm Down | 14 | 0x0E | Move main excavator arm down | 0x0E+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Bucket Actuator Up | 15 | 0x0F | Actuator that controls the bucket | 0x0F+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Bucket Actuator Down | 16 | 0x10 | Actuator that controls the bucket | 0x10+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| L actuator Up | 17 | 0x11 | Move left actuator up | 0x11+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| R actuator Up | 18 | 0x12 | Move right actuator up | 0x12+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| L actuator Down | 19 | 0x13 | Move left actuator down | 0x14+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| R actuator Down | 20 | 0x14 | Move right actuator down | 0x15+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Winch Forward | 21 | 0x15 | Set the winch to forward | 0x17+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Winch Reverse | 22 | 0x16 | Set the winch to reverse | 0x18+Time Stamp+Check-sum (6 Byte Length) | None | Pull |
| Resume | 239 | 0xEF | Request to resume autonomous operations | 0xEF  (6 Byte Length) | 0xEF  (6 Byte Length) | Pull |
| Start | 240 | 0xF0 | Request to start all operations | 0xF0  (6 Byte Length) | 0xF0  (6 Byte Length) | Pull |
| Stop | 241 | 0xF1 | Request to stop all operations | 0xF1  (6 Byte Length) | 0xF1  (6 Byte Length) | Pull |
| Manual  Control | 242 | 0xF2 | Request to take manual control | 0xF2  (6 Byte Length) | 0xF2  61 Byte Length) | Pull |
| Position X | 243 | 0xF3 | Request current X position of the robot | 0xF3  (6 Byte Length) | 0xF3+X position+Check-Sum (6 Byte Length)? | Pull |

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| Command | Code(dec) | Code(hex) | Description | Request | Response | Pull/Push |
| Position Y | 244 | 0xF4 | Request current Y position of the robot | 0xF4  (6 Byte Length) | 0xF4+Y position+Check-sum (6 Byte Length)? | Pull |
| LRF Range | 245 | 0xF5 | Request the current range the LRF is reading | 0xF5  (6 Byte Length) | 0xF5+Range+Check- sum  (Unknown Byte  Length) | Pull |
| Camera  Servo Pos | 246 | 0xF6 | Request the current set pos for the camera servo | 0xF6  (6 Byte Length) | 0xF6+Servo Pos+Check-sum (6 Byte Length) | Pull |
| Bump  Sensors | 247 | 0xF7 | Request the current state of the bump sensors (hit or not hit) | 0xF7  (6 Byte Length) | 0xF7+Sensor Info+Check-sum (6 Byte Length) | Push/Pull |
| Track  Speed | 248 | 0xF8 | Request the current speed of the tracks | 0xF8  (6 Byte Length) | 0xF8+L Track Speed+R Track Speed+Check sum (6 Byte Length) | Pull |
| Arm  Motor 1  Rot | 249 | 0xF9 | Request the current number of rotations the arm 1st motor have preformed | 0xF9  (6 Byte Length) | 0xF9+Rot+Check- Sum  (6 Byte Length) | Pull |
| Arm  Motor 2  Rot | 250 | 0xFA | Request the current number of rotations the arm 2nd motor have preformed | 0xFA  (6 Byte Length) | 0xFA+Rot+Check- Sum  (6 Byte Length) | Pull |
| Arm  Motor 3  Rot | 251 | 0xFB | Request the current number of rotations the arm 3rd motor have preformed | 0xFB  (6 Byte Length) | 0xFB+Rot+Check- Sum  (6 Byte Length) | Pull |
| Arm  Motor 4  Rot | 252 | 0xFC | Request the current number of rotations the arm 4th motor have preformed | 0xFC  (6 Byte Length) | 0xFC+Rot+Check- sum  (6 Byte Length) | Pull |
| Battery  Level | 253 | 0xFD | Request current battery level | 0xFD  (6 Byte Length) | 0xFD+Battery Level+Check-sum (6 Byte Length) | Pull |
| Response | 254 | 0xFE | Echo to Ping Command | 0xFF  (6 Byte Length) | 0xFE  (6 Byte Length) | N/A |
| Ping | 255 | 0xFF | Requests ip address of server | 0xFF  (6 Byte Length) | 0xFE  (6 Byte Length) | Pull |