

# Current Servo Setup

As described in [Vehicle Assembly](#) each servo should be configured such that the mechanical limits of its vehicle are utilised fully. Since it is technically infeasible to build the vehicles exactly the same, each vehicle will slightly differ in terms of at which servo position it moves completely straight or steers as far as possible to the left or the right. In order to assure that the vehicles have nearly the same moving behaviour, we put up with configuring the vehicle's servos differently. By doing this with the built-in end-point-adjustment (EPA) via the DPC-11 we facilitate that our software does not have to manage the vehicles differently. Instead, the minimal/central/maximal PWM signal corresponds to the left-most/straight/right-most steering command which has been set up via EPA. As a consequence, it is possible to have a different resolution in one servo from left to center and from center to right. Since the servo arm moves on a circular path and the relation between the PWM signal and the steering angle is thus non-linear (even without different resolutions in the settings), we assume the EPA with different resolutions to the left and right to be compensating the non-linearity implicitly. Consequently, we don't manage the non-linearity and the different resolutions explicitly.

The current EPA configurations are listed below:

Vehicle ID	LEFT	CENTER	RIGHT
01*	1480	2500	3700
02	1435	2550	3705
03	1415	2520	3800
04	1333	2470	3668
05*	1510	2650	3780
06*	1625	2625	3785
07	1440	2550	3720
08	1465	2520	3655
09*	1500	2550	3675
10	1340	2415	3640
11	1570	2600	3780
12	1225	2200	3445
13	1470	2500	3645
14	1485	2535	3735
15	1500	2600	3820
16	1240	2330	3420
17	1380	2445	3570
18	1555	2585	3750
19	1495	2500	3690
20	1480	2520	3700

\*Due to possible mismatches between the main board, the chassis, and thus the original ID of a chassis when reassembling the vehicles, the values for these vehicles might be incorrect/permuted.