Abstract DC Drive CAN message formatting

ID_B – broadcast ID

ID – Individual ID

offset – unique number for each drive in CAN. Set in **can.c.**

By default not extended IDs are used.

1. Setting the PID parameters (ID_B = 200, ID = 200 + offset)

47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32
TYPE [31:24]								FIELD[23:16]							

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
VALUE[31:16]															

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VALUE[15:0]															

Bits 47:40 **TYPE** Type of PID that is being configured

0000 0001: Speed PID

0000 0011: Current PID

0000 0100: Position PID

Bits 39:32 **FIELD** Field of PID that is being configured

0000 0000: Proportional coefficient

0000 0001: Integral coefficient

0000 0011: Differential coefficient

0000 0100: Coefficient on which will be divided all coefficients. Must not be 0

0000 0101: Number of measurement that is used to find average value and than used as feedback data (used only in the current PID)

Bits 31:0 **VALUE** Value to be set (int32_t)

2. Save settings of a PID to FLASH (ID_B = 200, ID = 200 + offset)

7	6	5	4	3	2	1	0
TYPE [7:0]							

Bits 7:0 **TYPE** Type of PID which settings should to be set

0000 0001: Speed PID

0000 0011: Current PID

0000 0100: Position PID

3. Setting desired value of PID (ID_B = 100, ID = 100 + offset)

39	38	37	36	35	34	33	32
TYPE [39:32]							

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
VALUE[31:16]															

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VALUE[15:0]															

Bits 39:32 **TYPE** Type of PID desired value of which should be set. This also switch PID mode of the drive to this type.

0000 0000: None (apply 0 voltage)

0000 0001: Speed PID

0000 0011: Current PID

0000 0100: Position PID

0000 0101: Direct control

Bits 31:0 **VALUE** Value to be set (int32_t)

4. 3. Request a LOG (ID_B = 900, ID = 900 + offset)

7	6	5	4	3	2	1	0
TYPE [7:0]							

Bits 7:0 **TYPE** Type of LOG that should be requested.

0000 0001: Speed

0000 0011: Current

0000 0100: Position

0000 0101: Voltage

5. LOG response

Speed log ID = 1024 + offset
Postion log ID = 1152 + offset
Current log ID = 1280 + offset
Temperature log ID = 1536 + offset
Voltage log ID = 1664 + offset

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
VALUE[31:16]															

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
VALUE[15:0]															

Bits 31:0 **VALUE** Value of a response (int32_t)