※주의: CAN GW 의 출력 (CAN2)이 연결된 네트워크가 차량 내부 네트워크 (CAN1)와 직접
연결되지 않도록 주의

3. 출력 메시지 및 SIGNAL 개요

3.1 Gateway 출력 메시지 (학생 제어기 입력)

Message	Identifier	Period(ms)	Transmit Unit	Receive Unit
GWAY1	0x0100	10	CAN Gateway	학생 제어기
GWAY2	0x0101	10	CAN Gateway	학생 제어기
GWAY3	0x0102	10	CAN Gateway	학생 제어기
GWAY4	0x0103	10	CAN Gateway	학생 제어기
GWAY5	0x0123	10	CAN Gateway	학생 제어기
GWAY10	0x0110	10	CAN Gateway	학생 제어기

Signal Name	Description	Message	Signal Length	Start Bit Address
Gway_Wheel_Velocity_FR	Front Right 휠속도	GWAY1	16	0
Gway_Wheel_Velocity_RL	Rear Left 휠속도	GWAY1	16	16
Gway_Wheel_Velocity_RR	Rear Right 휠속도	GWAY1	16	32
Gway_Wheel_Velocity_FL	Front Left 휠속도	GWAY1	16	48
Gway_Lateral_Accel_Speed	횡방향 가속도	GWAY2	16	0
Gway_Parking_Brake_Active	주차 브레이크	GWAY2	4	16
Gway_AirConditioner_On	Air Condition On/Off	GWAY2	4	20
Gway_Steering_Angle	조향휠 각	GWAY2	16	24
Gway_Steering_Speed	조향 휠 각속도	GWAY2	8	40
Gway_Steering_Tq	조향 토크 센서값	GWAY2	16	48
Gway_Accel_Pedal_Position	가속페달 위치	GWAY3	8	0
Gway_Brake_Active	브레이크 동작신호	GWAY3	4	8
Gway_BrakeMasterCylinder_Pressure	브레이크 마스터 실린더의 압력	GWAY3	16	12
Gway_Engine_Speed	엔진 RPM	GWAY3	16	28
Gway_Gear_Target_Change	변속기 기어단 수	GWAY3	4	44
Gway_GearSelDisp	Shift Lever 위치 값	GWAY3	4	48
Gway_Throttle_Position	스로틀 개도 위치	GWAY3	8	52
Gway_Cluster_Odometer	좌측 오도미터	GWAY4	24	0
Gway_Longitudinal_Accel_Speed	종방향 가속도	GWAY4	16	24

Gway_Vehicle_Speed_Engine	차량 종방향 속도	GWAY4	8	40
Gway_Yaw_Rate_Sensor	차량 요레이트	GWAY4	16	48
Gway_Input_Error	CAN GW 입력값 이상	GWAY5	64	0
Gway_AV_Main_SW	자율주행모드 On/Off 스위치	GWAY10	1	0
Gway_Driver_Override	운전자 Override (브레이크/엑셀)	GWAY10	2	8
AV Disable Flag	자율주행중 운전자 Override 에 의한종방향 제어 불가	GWAY10	1	16

3.2 학생제어기 출력 메시지 (Gateway 입력)

Message	Identifier	Period(ms)	Transmit Unit	Receive Unit
AVC10	0x0200	10	학생 제어기	CAN Gateway

Signal Name	Description	Message	Signal Length	Start Bit Address
AVC_Start	학생 제어기로부터의 자율주행 제어 On 신호	AVC10	1	0
AVC_StopReq	Stop 요청 시그널	AVC10	1	8
AVC_aReqMax	제어 요구 가속도	AVC10	11	16

4. SIGNAL 상세 사양

4.1 GWAY1 Message

Message: GWAY1	Identifier: 0100H

Memory layout:

7	6	5	4	3	2	1	0	
								56
Gway_Wheel_Velocity_FL (High)								56
Gway_Wheel_Velocity_FL (Low)								48
Gway_Wheel_Velocity_RR (High)								40
Gway_Wheel_Velocity_RR (Low)								32
Gway_Wheel_Velocity_RL (High)								24
Gway_Wheel_Velocity_RL (Low)								16
Gway_Wheel_Velocity_FR (High)								8
Gway_Wheel_Velocity_FR (Low)								0

Signal property:

Signal Name	Description	Initial Value	Error Indicator	Physical Range	Conversion Rule
Gway_Wheel_Velocity_FL	Front Left 차량 휠 중심축의 이동 속도 신호	0000H	3FFFH	0 ... 511.96875 [km/h] = 0000H... 3FFFH	(PH) = 0.03125 * (HEX) [km/h]
Gway_Wheel_Velocity_RR	Rear Right 차량 휠 중심축의 이동 속도 신호	0000H	3FFFH	0 ... 511.96875 [km/h] = 0000H... 3FFFH	(PH) = 0.03125 * (HEX) [km/h]
Gway_Wheel_Velocity_RL	Right Left 차량 휠 중심축의 이동 속도 신호	0000H	3FFFH	0 ... 511.96875 [km/h] = 0000H... 3FFFH	(PH) = 0.03125 * (HEX) [km/h]

Gway_Wheel_Velocity_FR	Front Right 차량 휠 중심축의 이동 속도 신호	0000H	3FFFH	0 ... 511.96875 [km/h] = 0000H... 3FFFH	(PH) = 0.03125 * (HEX) [km/h]

4.2 GWAY2 Message

Message: GWAY2	Identifier: 0101H

Memory layout:

7	6	5	4	3	2	1	0	
Gway_Steering_Tq (High)								56
Gway_Steering_Tq (Low)								48
Gway_Steering_Speed								40
Gway_Steering_Angle (High)								32
Gway_Steering_Angle (Low)								24
Gway_AirConditioner_On				Gway_Parking_Brake_Active				16
Gway_Lateral_Accel_Speed (High)								8
Gway_Lateral_Accel_Speed (Low)								0

Signal property:

Signal Name	Description	Initial Value	Error Indicator	Physical Range	Conversion Rule
Gway_Steering_Tq	조향휠 토크 센서값	800H	FFFH	-20.48 ~ 20.46 Nm = 000H … FFEH	(PH) = ((Hex)-800H) * 0.01 [Nm]
Gway_Steering_Speed	조향휠 각속도	00H	FFH	00H ..... FEH	(PH) = (HEX) * 4 (for 0 < HEX ≤ FEH)
Gway_Steering_Angle	조향휠 각	0000H	7FFFH	-3276.8 ... 3276.6 [Deg] = 8000H.. 7FFEH	(PH) = 0.1 * (Signed HEX) [Deg]
Gway_AirConditioner_On	Air Conditioner On/Off	0H	-	0H : OFF 1H : ON	-
Gway_Parking_Brake_Active	파킹브레이크 동작신호	0H	-	0H: Not activated 1H: Activated	-

Gway_Lateral_Accel_Speed	횡방향 가속도	0000H	07FFH	-10.23...10.23[m/s²] = 000H ... 7FEH	(PH) = 0.01 * (HEX) − 10.23 [m/s²]

4.3 GWAY3 Message

Message: GWAY1	Identifier: 0102H

Memory layout:

7	6	5	4	3	2	1	0	
-				Gway_Throttle_Position(High)				56
Gway_Throttle_Position(Low)				Gway_GearSelDisp				48
Gway_Gear_Target_Change				Gway_Engine_Speed(High)				40
Gway_Engine_Speed(High)				Gway_Engine_Speed(Low)				32
Gway_Engine_Speed(Low)				Gway_BrakeMasterCylinder_Pressure(High)				24
Gway_BrakeMasterCylinder_Pressure(High)				Gway_BrakeMasterCylinder_Pressure(Low)				16
Gway_BrakeMasterCylinder_Pressure(Low)				Gway_Brake_Active				8
Gway_Accel_Pedal_Position								0

Signal property:

Signal Name	Description	Initial Value	Error Indicator	Physical Range	Conversion Rule
GWay_Throttle_Position	흡기 스로틀 개도 위치	20H	FFH	0 ... 100 [%] = 20H ... F5H	(PH) = (((HEX) - 20H) * 100/213) [%]
Gway_GearSelDisp	기어 상태 정보 표시	9H	FH	00H: P 01H: L 02H: 2 03H: 3 04H: DS Mode 05H: D 06H: N 07H: R 08H: sports mode / manual shift 0CH: Paddle shift (D-position) 0EH:Intermediate Position 0FH: Fault	-

Gway_Gear_Target_Change	변속기 기어단 상태	-	-	0H: if N or P are detected (no frictional connection) 1H: 1st speed 2H: 2nd speed 3H: 3rd speed 4H: 4th speed 5H: 5th speed (if provided) 6H: More than 6th speed (if provided) 7H: Reverse speed	-
Gway_Engine_Speed	Engine RPM	0000H	FFFFH	0..16383.75 [rpm] = 0000H .. FFFFH	(PH) = 0.25 * (HEX) [rpm]
Gway_BrakeMasterCylinder_Pressure	브레이크 마스터 실린더의 압력	000H	FFFH	0 … 409.4 bar = 000H … FFEH	(PH) = 0.1* (HEX) [bar]
Gway_Brake_Active	브레이크 동작 상태	1H	3H	0H: Not available 1H: Not Activated(OFF) 2H: Activated(ON) 3H: Switch Fail	-
Gway_Accel_Pedal_Position	가속페달위치	00H	FFH	0...99.2 [%] = 00H..FEH	(PH) = 0.3906 * (HEX) [%]

4.4 GWAY4 Message

Message: GWAY4	Identifier: 0103H

Memory layout:

7	6	5	4	3	2	1	0	
Gway_Yaw_Rate_Sensor (High)								56
Gway_Yaw_Rate_Sensor (Low)								48
Gway_Vehicle_Speed_Engine								40
Gway_Longitudinal_Accel_Speed (High)								32
Gway_Longitudinal_Accel_Speed (Low)								24
Gway_Cluster_Odometer (High)								16
Gway_Cluster_Odometer								8
Gway_Cluster_Odometer (Low)								0

Signal property:

Signal Name	Description	Initial Value	Error Indicator	Physical Range	Conversion Rule
Gway_Yaw_Rate_Sensor	차량 요레이트 센서	0000H	1FFFH	-40.95 ... +40.95 [Deg/s] = 00H ... 1FFEH	(PH) = (0.01 * (HEX)) – 40.95 [Deg/s]
Gway_Vehicle_Speed_Engine	차량 종방향 속도	00H	FFH	0 ... 254 [km/h] = 00H.. FEH	(PH) = 1 * (HEX) [km/h]
Gway_Longitudinal_Accel_Speed	차량의 종방향 가속도 신호	0000H	07FFH	-10.23 ... 10.23 [m/s²]= 000H ... 7FEH	(PH) = 0.01* (HEX) – 10.23 [m/s²]
Gway_Cluster_Odometer	클러스터 오도미터값	000000H		0 ... 1677721.4 [km]= 000000H ... FFFFFE	(PH) = 0.1* (HEX)

4.5 GWAY5 Message

Message: GWAY5	Identifier: 0123H

Memory layout:

7	6	5	4	3	2	1	0	
EFH								56
CDH								48
ABH								40
89H								32
67H								24
45H								16
23H								8
01H								0

Signal property:

Signal Name	Description	Initial Value	Error Indicator	Physical Range	Conversion Rule
Dummy7	Dummy message7	EFH	-	EFH	-
Dummy6	Dummy message6	CDH	-	CDH	-
Dummy5	Dummy message5	ABH	-	ABH	-
Dummy4	Dummy message4	89H	-	89H	-
Dummy3	Dummy message3	67H	-	67H	-
Dummy2	Dummy message2	45H	-	45H	-
Dummy1	Dummy message1	23H	-	23H	-
Dummy0	Dummy message0	01H	-	01H	-