

호선의 ECU DEVICE별로 회로값의 on off에 따라 패턴 파악이 가능한지에 대한 여부 확인

가설 : '호선별로 전부 같은 DEVICE가 달려있다고 할 수 있을까' 라는 생각에 만약 같은 수치를 측정하는 DEVICE 종류가 개별적이라면,
호선의 DEVICE ID별로 패턴(1~4, 1~6, 1~8)이 있는건 아닐까?
기체별로 회로를 사용하는 or 회로가 있는 수가 다르다?(전부 8개를 사용하지는 않는다?) 라는 가설을 두고 확인해보았습니다

결론 : 한 DEVICE_ID 안에 패턴이 여러개인 경우가 확인되어 DEVICE_ID별로 패턴이 일정하다는 가설 폐기

검증 : 테크로스의 설명상 연속적으로 on,off 되어있어야 한다는 답변에
(1~4, 1~6, 1~8 세 패턴만 유효하다고 의미하는 것인지 연속적이기만 하면 다 가능한 것인지 여부를 잘 모르겠습니다.
회로의 직렬, 병렬 여부가 이에 영향을 미치는지 생각이 들었습니다)

호선별, DEVICE_ID별로 나누어 중복된 패턴값은 제외하고 종류만 확인

```
T140110-00206
      DEVICE_ID      0
548          1  00000000
136996       2  00000000
269039       3  00000000
399532       4  00000000
T140113-00101
      DEVICE_ID      0
0            1  00000000
136608       2  00000000
269043       3  00000000
402391       4  00000000
512810       5  00000000
563477       6  00000000
T140113-00102
      DEVICE_ID      0
1            1  00000000
136609       2  00000000
269044       3  00000000
401984       4  00000000
512699       5  00000000
```

563366	6	00000000
--------	---	----------

T140113-00103

	DEVICE_ID	0
2	1	11111111
136610	2	11111111
269045	3	11111111
413706	4	11111111
428240	4	00000000
517471	5	11111111
526271	5	00000000
533518	5	11101111
533611	5	11100111
533645	5	11110111
568138	6	11111111
568276	6	01111111
576938	6	00000000
577015	6	00111111

T140113-00104

	DEVICE_ID	0
3	1	11111111
136611	2	11111111
269046	3	11111111

T140128-00703

	DEVICE_ID	0
4	1	00000000
1385	1	11100000
136612	2	00000000
137561	2	11100000
269494	3	00000000
294273	3	11100000
295147	3	01100000
337743	3	10100000
399689	4	00000000
414721	4	11100000
445856	4	01100000

T140703-00101

	DEVICE_ID	0
5	1	11100000
136613	2	11100000
270789	3	11100000
400221	4	11100000

T140708-00101

	DEVICE_ID	0
6	1	00000000
6161	1	11110000
136614	2	00000000
141084	2	11110000
271352	3	00000000
271937	3	11110000
400498	4	00000000
400741	4	11110000

T141027-00501

	DEVICE_ID	0
7	1	11111111
69361	1	00000000
136615	2	11111111
202081	2	00000000
269047	3	11111111
326088	3	00000000
402987	4	11111111
429473	4	00000000
513004	5	11111111
526991	5	00000000
563671	6	11111111
577658	6	00000000

T160127-00202

	DEVICE_ID	0
8	1	00000000
136616	2	00000000

T170102-00101

	DEVICE_ID	0
9	1	00000000

T20180208001

	DEVICE_ID	0
10	1	11111111
27060	1	01111111
49107	1	10111111
69184	1	00000000
84280	1	11011111
94135	1	10100000
100125	1	11111101
136617	2	11111111
198539	2	00000000
206742	2	00000001
206747	2	00001101
228382	2	11111110
256126	2	00001001
383477	3	00000110
358258	3	00000010
347755	3	11111011
383530	3	01001111
325822	3	00000000
289560	3	01111111
269048	3	11111111
347584	3	11111110
400618	4	11111111
424159	4	00000000
433231	4	11111101
456948	4	10111101
458076	4	01000000
466742	4	11111011
468866	4	11111110

471464	4	01111111
560258	5	11111000
560248	5	11111110
512281	5	11111111
523834	5	00000000
560245	5	10011000
596031	6	11111011
562948	6	11111111
563910	6	11111101
574501	6	00000000
575747	6	11011111
579998	6	11011101
595737	6	11101111
598657	6	01001111

T20180614001

	DEVICE_ID	0
11	1	11101111
51	1	11111111
4675	1	00000000
98843	1	10111111
136618	2	10111111
136646	2	11111111
139990	2	00000000
271424	3	00000000
269401	3	11111110
269131	3	11011111
269049	3	11111111
399545	4	11111111
401429	4	00000000
511916	5	11111111
512512	5	00000000
562583	6	11111111
563179	6	00000000

T20180910004

	DEVICE_ID	0
1297	1	00000000
1407	1	11111011
1758	1	11111111
22031	1	10001000
40379	1	01110111
83300	1	11111101
84893	1	01001100
105082	1	10000000
137504	2	00000000
137578	2	01111111
137821	2	11111111
269734	3	00000000
269792	3	11111111
360721	3	00001111
400180	4	11111111
399708	4	00000000

399752	4	11110111
511959	5	00000000
511975	5	11111111
515183	5	01110111
521270	5	00001100
553901	5	00001000
562626	6	00000000
562642	6	10110111
562647	6	11110111
562702	6	01110111
562823	6	11111111
606454	6	00001111
613738	7	00000000
613740	7	11100000

T20181031003

	DEVICE_ID	0
336	1	00000000
4710	1	11100000
136847	2	00000000
140016	2	11100000
269040	3	00000000
269616	3	11100000
399533	4	00000000
399753	4	11100000

T20181218003

	DEVICE_ID	0
12	1	00000000
38	1	11000000
136619	2	00000000
136637	2	11100000
269164	3	00000000
269176	3	11000000
367348	3	10000000
367350	3	01000000
399577	4	00000000
399582	4	11100000

T20190115004

	DEVICE_ID	0
13	1	00000000
118	1	11111111
136620	2	11111111
150950	2	00000000
269051	3	11111111
281297	3	00000000
399537	4	11111111
406421	4	00000000
522115	5	11111111
517011	5	00000000
567678	6	00000000
572857	6	11111111
572934	6	01010101

614308	7	00000000
614894	7	01111111
614900	7	11111111
617199	8	11111111
616613	8	00000000
617213	8	01010101

T20190324001

	DEVICE_ID	0
14	1	00000000
39	1	11111111
35395	1	01010011
136621	2	00000000
136638	2	11111111

T20190527002

	DEVICE_ID	0
15	1	11111111
136622	2	11111111
269052	3	11110000
399760	4	11111111
400332	4	00000000
511976	5	11111111
562643	6	11110000

T20191014001

	DEVICE_ID	0
16	1	00000000
918	1	11111111
1127	1	10101010

T20191016008

	DEVICE_ID	0
17	1	11000000
971	1	00000000
19808	1	11111111
136623	2	00000000
137385	2	11000000
152576	2	11111111
269053	3	00000000
269709	3	11000000
283045	3	11111111
407421	4	11111111
399671	4	00000000
399918	4	11000000
511948	5	00000000
512063	5	11000000
514745	5	11111111
565416	6	11111111
562615	6	00000000
562770	6	11000000
565430	6	11111100

T20191119009

	DEVICE_ID	0
97	1	00000000

121	1	11000000
6780	1	11111111
14442	1	10101010
19996	1	01110111
43195	1	11111011
136679	2	00000000
141545	2	11111111
269041	3	00000000
274171	3	11111111
276853	3	11011111
305958	3	11011110
399534	4	00000000
401923	4	11111111

T20200113001

DEVICE_ID		0
1788	1	11111111
25343	1	00000000
137842	2	11111111
158063	2	00000000
269947	3	11111111
288160	3	00000000
400211	4	00000000
400218	4	11111111
512180	5	11111111
519366	5	11111110
512175	5	00000000
562842	6	00000000
562847	6	11111111
613816	7	00000000
613817	7	11111111
616309	8	00000000
616310	8	11111111
617619	8	11111110
619150	9	00001111
618614	9	00000000
618615	9	11111111
619196	9	11110111

T20200218004

DEVICE_ID		0
18	1	10000000

T20200603001

DEVICE_ID		0
19	1	11100000
136624	2	11100000

T20201110002

DEVICE_ID		0
1791	1	11111111
137844	2	11111111
269948	3	11111111
399531	4	11111111
511913	5	11111111

562580	6	11111111
--------	---	----------

T20201209001

DEVICE_ID		0
-----------	--	---

2070	1	11111111
21338	1	00000000
138039	2	11111111
162622	2	11100111
162637	2	11100101
154058	2	00000000
166110	2	11010111
270073	3	11111111
284436	3	00000000
400133	4	11111111
417845	4	00000000
512133	5	11111111
519911	5	00000000
562800	6	11111111
569307	6	11000111
570578	6	00000000

T20201210002

DEVICE_ID		0
-----------	--	---

21	1	00000000
3198	1	11111111
136626	2	00000000
138899	2	11111111
269056	3	00000000
270605	3	11110000

T20201210003

DEVICE_ID		0
-----------	--	---

22	1	00000000
58	1	11111111
136627	2	00000000
136651	2	11111111
269057	3	00000000
269077	3	11110000

T20201210004

DEVICE_ID		0
-----------	--	---

23	1	11111111
136628	2	11110000
269058	3	11110000
399541	4	11110000

T20201210005

DEVICE_ID		0
-----------	--	---

24	1	00000000
59	1	11111111
1436	1	11101011
136629	2	00000000
136652	2	11111111
137597	2	10000010
138755	2	11110111
163129	2	11111110

269059	3	00000000
269078	3	11110000
T20201210006		
DEVICE_ID		0
25	1	00000000
60	1	11111111
136630	2	00000000
136653	2	11111111
269060	3	00000000
269079	3	11110000
T20201210008		
DEVICE_ID		0
26	1	00000000
752	1	11111111
76090	1	11111011
76096	1	11011011
82561	1	10011011
136631	2	00000000
137141	2	11111111
208810	2	11010110
269061	3	00000000
269433	3	11111111
336174	3	11111001
T20210521011		
DEVICE_ID		0
27	1	00000000
32	1	11000000
1069	1	11111111
9230	1	01111111
UnkownShip		
DEVICE_ID		0
28	1	11111111
136632	2	11111111
269062	3	11111111

패턴 종류 분류

00000000	116
11111111	95
11100000	17
11110000	13
11000000	10
11111110	8
01111111	7
11111011	6
11110111	5
11011111	4
11111101	4
01110111	4

10111111	3
10000000	3
00001111	3
11101111	3
10101010	2
01000000	2
01001111	2
01010101	2
10100000	2
01100000	2
11100111	2
11000111	1
11101011	1
11010111	1
11011011	1
11100101	1
10011011	1
11011110	1
11111100	1
11010110	1
01010011	1
10000010	1
10011000	1
10110111	1
00001000	1
00001100	1
01001100	1
10001000	1
11011101	1
11111000	1
10111101	1
00000010	1
00000110	1
00001001	1
00001101	1
00000001	1
00111111	1
11111001	1