Imperium Decoder

Dapol Imperium DCC Decoders. Useful Information

Imperium is Dapol's own brand of decoder. They have been designed to offer a full range of functions at a reasonable price, complementing the additional features found on Dapol's models (such as independent lighting) as well as operating with other manufacturers models equipped with regular directional lighting or without lighting. Imperium are compatible with all models featuring a standard NEM decoder socket and operate with most motor types.

Imperium decoders are compatible with NMRA and MOROP DCC standards. RailCom is not supported.

Basic Information

1. **Decoder features:** All Dapol Imperium decoders share the same features. (For a full feature list and programming information, please refer to the Imperium configuration guide on our website www.dapol.co.uk).

- Back EMF (BEMF) motor control (Programmable)
- Directional control of AUX outputs
- Lighting effects (Dimming, Flicker, Beacon, Strobe etc.)
- Intermittent (Button control) of the motor for Trams, cranes, etc.
- Function [output] Mapping. NMRA standard
- Coach lighting feature (CV59)
- Standard (CVs 2,6 & 5) & advanced (extended) speed tables
- Acceleration (CV 3) & deceleration (CV 4) control
- Advanced consisting (including lighting controls)
- Decoder lock

2. **Factory default address** is 3

3. **Factory Reset:** Write 4 to CV8 to reset the decoders.

- Note: after reset, all CV's will reset to factory defaults. Please refer to the CV list for default values.
- **Note:** If, after resetting, the decoder + CV values remain unchanged, it is possible the decoder lock is ON. Set CV15 to) and CV16 to 1 using the programming track to unlock it. Then attempt to reset again (using the programming track).

Decoder Types and Specifications

1. **860019 21 PIN 6 Function decoders (21MTC/NEM 660/MTX interface Standard).**

- Function rating:100 Ma.
- Motor rating: 1.0Amp continuous, 2.0 Amp Peak.
- **Note:** Aux 3,4,5 & 6 are Logic level outputs (per MTC specification).
- Note: This decoder has an index pin, check the 'missing' pin in your model aligns with the 'missing hole' in the decoder

2. 860015 Next 18 6 Function decoders (NEM 662)

- Function rating:100 Ma.
- Motor Rating: 1.0 Amp continuous, 2.0 Amp peak

3. Trouble shooting

Every decoder was tested before it was packaged, so you can be sure that the decoder you receive is ready for use when you buy them. If your model ran well before you added the decoder and does not operate as expected after installation please check the decoder is correctly fitted (not misaligned and correctly/fully plugged in). We have included some basic trouble shooting tips below.

Nothing happens

- Have you selected the correct address? If it's a new decoder it will be 3. If you cant remember or are not sure, either program a new address using the programming track or reset the decoder which will set the address to 3 again.
- If you do know the address, try reading the decoder on the programming track or replace the decoder with the correct blanking plug to test for loco failure or a short circuit in the wiring. Also check you have not locked your decoder before resetting.

Loco runs in reverse

For diesel models, please check that the front of the model is actually the No. 1 end. If the model is still running in reverse then contact your dealer as there may be a wiring error in the model. Alternatively you can ass 1 to the existing value of CV29.

Light / functions don't work

Have you turned the lights on with Function 0 (zero) and also tried changing direction?

I have made a mistake with a CV setting

If you cannot remember which CV to correct or the correct setting then reset your decoder (CV 8 = 4). It will then revert to factory default settings.

It looks burnt

This suggests a short circuit in the motor or lighting, incorrect wiring, overload or similar. Unless you are sure what has caused this, do not simply change the decoder for a good one without testing or seeking further advice! (If in doubt, always try a RESET using CV 8).

Each Dapol Imperium decoder is crafted from the best components to offer years of service and pleasure. Each carries a **ten year warranty** against failure in normal use

Dapol Limited
Gledrid Industrial Park,
Chirk,
Wrexham
LL14 5DG.
United Kingdom
Tel: 01691 774455 Fax: 01691 778866
Www.dapol.co.uk e-mail: sales@dapol.co.uk

Dapol Imperium Support CV list V1.0 (Pre-release)

CV No.	Description	Default	After Reset
1	Primary Address /2 Digit Address / Short Address	3	3
2	Vstart - Starting 'voltage' supplied to motor at speed step 1 Acceleration	0	0
3	Rate	1	1
4	Deceleration Rate	1	1
5	Vhigh - Maximum 'voltage' supplied to motor at highest speed step	0	0
6	Vmid - 'Voltage supplied to motor at the midpoint of the speed range	0	0
7	Software Version Number	1/2/3/4	Read Only
8	Manufacturer ID/CV8=4 for Reset	154	Use CV8=4 for Reset
10	EMF Feedback Cutout	88	88
13	Alternate Mode Function Status	255	255
14	Alternate Mode Function 2 Status	255	255
15	Decoder Lock	0	0
16	Decoder Lock	1	1
17	Extended Address/4 Digit Address/Long address	0	0
18	Extended Address/4 Digit Address/Long address	0	0
19	Consist Address	0	0
20	Reserved by NMRA		0
21	Consist Address Active for F1-F8 Consist	0	0
22	Address Active for FL and F9-F12		0
23	Acceleration Adjustment	0	0
24	Deceleration Adjustment	0	0
26	Reserved by NMRA		0
27	Not currently supported: (Decoder Automatic Stopping Configuration)		0
28	Not currently supported: (Bi-Directional Communication Configuration)		0
29	Multi-function CV (Per NMRA)	6	6
30	CV30=4 for Alternate reset	0	0
33	Forward Headlight FL(F0F)/White Wire	1	1
34	Reverse Headlight FL(F0R)/Yellow Wire	2	2
35	Function 1/Green Wire(0-6)	4	4
36	Function 2/Purple Wire(0-6)	8	8
37	Function 1/Green Wire(7-12)	0	0
38	Function 2/Purple Wire(7-12)	0	0
39	Function 3/Brown Wire(0-6)	16	16
40	Function 4/Pink Wire((0-6)	32	32
41	Function 3/Brown Wire(7-12)	0	0
42	Function 4/Pink Wire((7-12)	0	0
43	Function 5/Pink/Purple Wire(0-6)	0	0
44	Function 6/Green/Brown Wire(0-6)	0	0
45	Function 5/Pink/Purple Wire(7-12)	0	0
46	Function 6/Green/Brown Wire(7-12)	0	0
47	USER Use	0	0
48	USER ID #3	0	non volatile
49	White Wire/FL Feature	0	0
50	Yellow Wire/RL Feature	16	16
51	Green Wire/F1 Feature	32	32
52	Violet Wire/F2 Feature	32	32
53	Brown Wire/F3 Feature/When Available	32	32
54	Pink Wire/F4 Feature/When Available	32	32
56	Dither Frequency	3	3
57	Dither Amplitude	10	10
59	Passenger/Coaches Light F0 Control 0=OFF 1=F1/F2 ON 2=ALL ON	0	0
60	Production location	1/2/3/4/5	Read Only
61	Configuration Options	1	1
62	USER ID #4	0	non volatile
63	Ditch Light Blink pause timer	63	63
64	Dim Value	6	6
65	USER ID #5	0	non volatile
66	USER ID #6	0	non volatile
67	Speed Table Step 1	8	8
68	Speed Table Step 2	16	16
69	Speed Table Step 3	24	24
70	Speed Table Step 4	32	32
71	Speed Table Step 5	40	40

72	Speed Table Step 6	48	48
73	Speed Table Step 7	56	56
74	Speed Table Step 8	64	64
75	Speed Table Step 9	72	72
76	Speed Table Step 10	80	80
77	Speed Table Step 11	88	88
78	Speed Table Step 12	96	96
79	Speed Table Step 13	104	104
80	Speed Table Step 14	114	114
81	Speed Table Step 15	124	124
82	Speed Table Step 16	134	134
83	Speed Table Step 17	144	144
84	Speed Table Step 18	154	154
85	Speed Table Step 19	164	164
86	Speed Table Step 20	174	174
87	Speed Table Step 21	184	184
88	Speed Table Step 22	194	194
89	Speed Table Step 23	204	204
90	Speed Table Step 24	214	214
91	Speed Table Step 25	224	224
92	Speed Table Step 26	234	234
93	Speed Table Step 27	244	244
94	Speed Table Step 28	255	255
96	Reserved by NMRA		0
97	Reserved by NMRA	0	0
98	Reserved by NMRA	0	0
99	Reserved by NMRA	0	0
100	Reserved by NMRA	0	0
101	Reserved by NMRA	0	0
102	Reserved by NMRA	0	0
103	Reserved by NMRA	0	0
104	Reserved by NMRA	0	0
105	USER ID #1	0	non volatile
106	USER ID #2	0	non volatile
107	Reserved by NMRA		0
108	Reserved by NMRA	0	0
109	Reserved by NMRA	0	0
110	Reserved by NMRA	0	0
111	Reserved by NMRA	0	0
112	Mars Light Min Brightness	1	1
113	Mars Light Max Brightness Time	9	9
114	Mars Light Total Light Cycle	1	1
115	Mars Light Mid Brightness	6	6
116	Mars Light Max Brightness	22	22
117	Ditch Light Blink Rate	3	3
118	Rotary Beacon Min. Bright	1	1
119	Rotary Beacon Min. Bright Time	5	5
120	Rotary Beacon Total Light Cycle	1	1
121	Rotary Beacon Mid Brightness	15	15
122	Rotary Beacon Max Brightness	25	25
123	ON/OFF Headlamp Dimming	32	32
124	ON/OFF Ditch Light Blink	8	8
125	Rate 2 Ending Point	0	0
126	Deceleration Rate 2	0	0
127	Rate 3 Ending Point	0	0
128	Deceleration Rate 3	0	0
129	Rate 2 Starting Point	0	0
130	Acceration Rate 2	0	0
131	Rate 3 Starting Point	0	0
132	Acceration Rate 3	0	0
133	Power Level for Button Control	0	Non volatile
134	Button Control of Motor Circuit	2	Non volatile
135	Random Flicker Adjust	16	16
136	BEMF Map	2	Non volatile
137	YY/Production Time of Year	YY	Read Only
138	YY/Production Time of Year	YY	Read Only
139	MM/Production Time of Month	MM	Read Only
140	DD/Production Time of Day	DD	Read Only
141-255	Not in USE	0	0

Note: This list is subject to change due to product development, this list is applicable to software versions identified by CV 7.