

DMX-RL8 Series
DMX 8-channel Relay Output Module
Information and Installation Guide

OVERVIEW

The DMX-RL8 series are DMX512-A ("DMX") compatible, 8-channel relay output modules designed for fixed installations. They are capable of switching up to 8 loads from 8 DMX slots. The series features an optically-isolated receiver to eliminate ground loops. The modules are available with various options for supply voltage. An optional kit is available for mounting the modules on a DIN rail.

ORDERING INFORMATION

Model	Supply Voltage	Output Channels	DIN Mounting Kit
DMX-RL8-12V	12 VDC	8	DIN-DMX-RL8
DMX-RL8-24V	24 VDC	8	DIN-DMX-RL8

SERIES INFORMATION

Model	DMX-RL8-12V	DMX-RL8-24V
Dimensions	5.6" x 2.875"	
Supply Voltage	12 VDC \pm 10%	24 VDC \pm 10%
Power Consumption (max.)	6 W	
Working Temperature	-40 to +85°C	
Output Channels	8	
Relay Output Contacts	NO, NC, COM	
Relay Output Rating	10 A / 230 VAC	
DIN Rail Mountable	Yes, with optional kit	
DMX IN Isolated Receiver	Yes, 1kV isolation	
DMX IN Termination	Yes, built-in DIP switch selectable	
DMX THRU Port	Yes, passive loop	
DMX Unit Load	1	
DMX Start Slot	Selectable, from 1 - 512 (0 - 511 on DIP switch)	
DMX Update Rate	Full 44 updates/second	
DMX Start Code Handling	Responds to NULL start code, all others ignored	
DMX Data Loss Handling	Maintain last state	
DMX Output Activation	0 – Off / 1 to 255 – On (programmable, shipping default)	

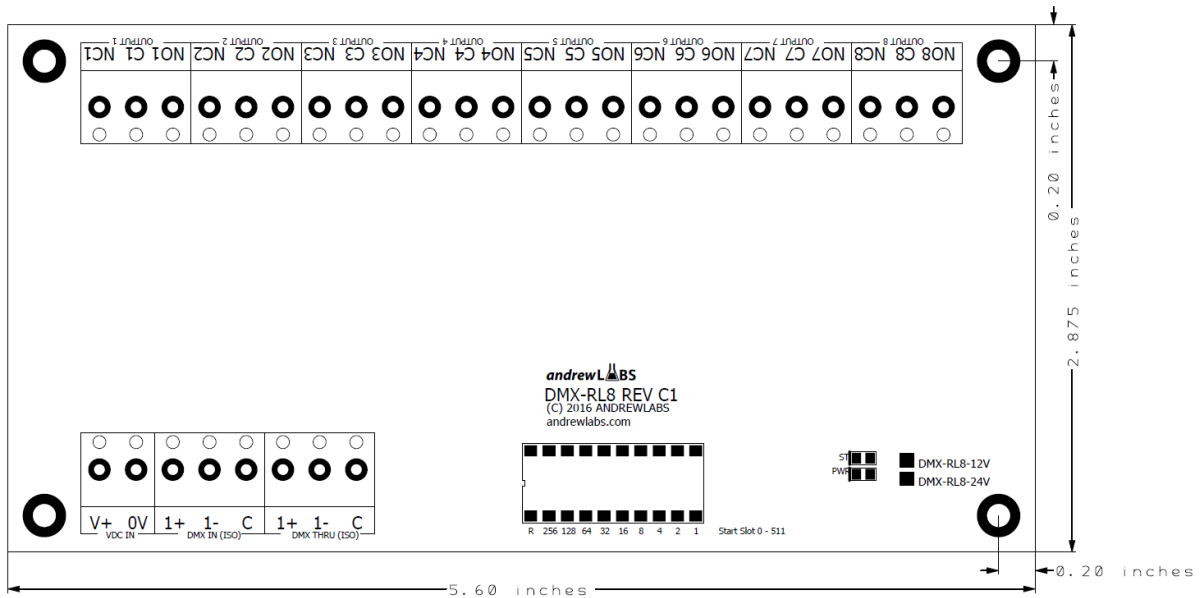
OPERATION

Each relay output is controlled by a single DMX slot, beginning from the configured start slot, and incrementing sequentially for each subsequent relay output. The default relay output activation level is 1, where slot values greater or equal to 1 will turn on the relay (see PROGRAMMING THE ACTIVATION LEVEL below). Each relay has an LED indicator which lights up when it is energised. During normal operation, the ST LED flashes twice every second. During data loss, the ST LED turns off, with a short duration flash every 2 seconds. The PWR LED lights when power is supplied to the module.

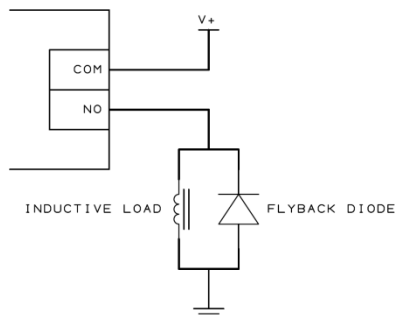
INSTALLATION

- Mount securely using mount points on corners of PCB (4 x 3.2mm dia. for M3 screws), or with optional DIN mounting kit.
- Connect power supply to "VDC IN" terminals.
- Connect DMX output from DMX master or previous unit to "DMX IN" terminals.
- Connect "DMX THRU" terminals to next unit. If the DMX-RL8 is the last unit in daisy chain, turn on "R" switch on DIP switch to terminate the DMX bus with the built-in 120R resistor.
- Connect controlled devices to relay outputs (see INDUCTIVE LOADS below).
- Select the DMX start slot using the DIP switch (see CONFIGURING THE START SLOT below).

BOARD LAYOUT



INDUCTIVE LOADS



A flyback diode or snubber must be connected across inductive loads to avoid damage to output relay contacts.

CONFIGURING THE START SLOT

The DMX start slot is configurable from 1 – 512. A position on the DIP switch should be off if the setting is '0', and on if the setting is '1'. Refer to the start slot listing below for specific DIP settings.

Example:

Start Slot – 80, DIP Setting – 001001111 (decimal value – 79)

DIP Switch Position	256	128	64	32	16	8	4	2	1
Setting	Off	Off	On	Off	Off	On	On	On	On

DMX START SLOT LISTING

Start Slot	DIP Setting	Start Slot	DIP Setting	Start Slot	DIP Setting	Start Slot	DIP Setting
1	00000000	65	00100000	129	01000000	193	01100000
2	00000001	66	00100001	130	01000001	194	01100001
3	00000010	67	00100010	131	01000010	195	01100010
4	00000011	68	00100011	132	01000011	196	01100011
5	00000100	69	001000100	133	010000100	197	011000100
6	00000101	70	001000101	134	010000101	198	011000101
7	00000110	71	001000110	135	010000110	199	011000110
8	00000111	72	001000111	136	010000111	200	011000111
9	000001000	73	001001000	137	010001000	201	011001000
10	000001001	74	001001001	138	010001001	202	011001001
11	000001010	75	001001010	139	010001010	203	011001010
12	000001011	76	001001011	140	010001011	204	011001011
13	000001100	77	001001100	141	010001100	205	011001100
14	000001101	78	001001101	142	010001101	206	011001101
15	000001110	79	001001110	143	010001110	207	011001110
16	000001111	80	001001111	144	010001111	208	011001111
17	000010000	81	001010000	145	010010000	209	011010000
18	000010001	82	001010001	146	010010001	210	011010001
19	000010010	83	001010010	147	010010010	211	011010010
20	000010011	84	001010011	148	010010011	212	011010011
21	000010100	85	001010100	149	010010100	213	011010100
22	000010101	86	001010101	150	010010101	214	011010101
23	000010110	87	001010110	151	010010110	215	011010110
24	000010111	88	001010111	152	010010111	216	011010111
25	000011000	89	001011000	153	010011000	217	011011000
26	000011001	90	001011001	154	010011001	218	011011001
27	000011010	91	001011010	155	010011010	219	011011010
28	000011011	92	001011011	156	010011011	220	011011011
29	000011100	93	001011100	157	010011100	221	011011100
30	000011101	94	001011101	158	010011101	222	011011101
31	000011110	95	001011110	159	010011110	223	011011110
32	000011111	96	001011111	160	010011111	224	011011111
33	000100000	97	001100000	161	010100000	225	011100000
34	000100001	98	001100001	162	010100001	226	011100001
35	000100010	99	001100010	163	010100010	227	011100010
36	000100011	100	001100011	164	010100011	228	011100011
37	000100100	101	001100100	165	010100100	229	011100100
38	000100101	102	001100101	166	010100101	230	011100101
39	000100110	103	001100110	167	010100110	231	011100110
40	000100111	104	001100111	168	010100111	232	011100111
41	000101000	105	001101000	169	010101000	233	011101000
42	000101001	106	001101001	170	010101001	234	011101001
43	000101010	107	001101010	171	010101010	235	011101010
44	000101011	108	001101011	172	010101011	236	011101011
45	000101100	109	001101100	173	010101100	237	011101100
46	000101101	110	001101101	174	010101101	238	011101101
47	000101110	111	001101110	175	010101110	239	011101110
48	000101111	112	001101111	176	010101111	240	011101111
49	000110000	113	001110000	177	010110000	241	011110000
50	000110001	114	001110001	178	010110001	242	011110001
51	000110010	115	001110010	179	010110010	243	011110010
52	000110011	116	001110011	180	010110011	244	011110011
53	000110100	117	001110100	181	010110100	245	011110100
54	000110101	118	001110101	182	010110101	246	011110101
55	000110110	119	001110110	183	010110110	247	011110110
56	000110111	120	001110111	184	010110111	248	011110111
57	000111000	121	001111000	185	010111000	249	011111000
58	000111001	122	001111001	186	010111001	250	011111001
59	000111010	123	001111010	187	010111010	251	011111010
60	000111011	124	001111011	188	010111011	252	011111011
61	000111100	125	001111100	189	010111100	253	011111100
62	000111101	126	001111101	190	010111101	254	011111101
63	000111110	127	001111110	191	010111110	255	011111110
64	000111111	128	001111111	192	010111111	256	011111111

Start Slot	DIP Setting	Start Slot	DIP Setting	Start Slot	DIP Setting	Start Slot	DIP Setting
257	10000000	321	10100000	385	11000000	449	11100000
258	10000001	322	10100001	386	11000001	450	11100001
259	10000010	323	10100010	387	11000010	451	11100010
260	10000011	324	10100011	388	11000011	452	11100011
261	10000100	325	10100100	389	11000100	453	11100100
262	10000101	326	10100101	390	11000101	454	11100101
263	10000110	327	10100110	391	11000110	455	11100110
264	10000111	328	10100111	392	11000111	456	11100111
265	10001000	329	10100100	393	11001000	457	11100100
266	10001001	330	10100101	394	11001001	458	11100101
267	10001010	331	10100110	395	11001010	459	11100110
268	10001011	332	10100111	396	11001011	460	11100111
269	10001100	333	10100110	397	11001100	461	11100110
270	10001101	334	10100111	398	11001101	462	11100111
271	10001110	335	10100111	399	11001110	463	11100111
272	10001111	336	10100111	400	11001111	464	11100111
273	10001000	337	10101000	401	11001000	465	11101000
274	10001001	338	10101001	402	11001001	466	11101001
275	10001010	339	10101010	403	11001010	467	11101010
276	10001011	340	10101011	404	11001011	468	11101011
277	10001100	341	10101010	405	11001100	469	11101100
278	10001101	342	10101011	406	11001101	470	11101101
279	10001110	343	10101011	407	11001110	471	11101110
280	10001111	344	10101011	408	11001111	472	11101111
281	10001100	345	10101100	409	11001100	473	11101100
282	10001101	346	10101101	410	11001101	474	11101101
283	10001110	347	10101101	411	11001110	475	11101110
284	10001111	348	10101101	412	11001111	476	11101111
285	10001100	349	10101110	413	11001110	477	11101110
286	10001101	350	10101110	414	11001110	478	11101110
287	10001110	351	10101110	415	11001111	479	11101111
288	10001111	352	10101111	416	11001111	480	11101111
289	10010000	353	10110000	417	11010000	481	11110000
290	10010001	354	10110001	418	11010001	482	11110001
291	10010010	355	10110010	419	11010010	483	11110010
292	10010011	356	10110011	420	11010011	484	11110011
293	10010100	357	10110010	421	11010010	485	11110010
294	10010101	358	10110011	422	11010011	486	11110011
295	10010110	359	10110011	423	11010011	487	11110011
296	10010111	360	10110011	424	11010011	488	11110011
297	10010100	361	10110100	425	11010100	489	11110100
298	10010101	362	10110101	426	11010101	490	11110101
299	10010110	363	10110101	427	11010101	491	11110101
300	10010111	364	10110101	428	11010101	492	11110101
301	10010100	365	10110110	429	11010110	493	11110110
302	10010101	366	10110110	430	11010110	494	11110110
303	10010110	367	10110110	431	11010110	495	11110110
304	10010111	368	10110111	432	11010111	496	11110111
305	10011000	369	10111000	433	11011000	497	11111000
306	10011001	370	10111001	434	11011001	498	11111001
307	10011010	371	10111010	435	11011010	499	11111010
308	10011011	372	10111011	436	11011011	500	11111011
309	10011010	373	10111010	437	11011010	501	11111010
310	10011011	374	10111011	438	11011011	502	11111011
311	10011010	375	10111011	439	11011011	503	11111011
312	10011011	376	10111011	440	11011011	504	11111011
313	10011100	377	10111100	441	11011100	505	11111100
314	10011101	378	10111101	442	11011101	506	RESERVED
315	10011101	379	10111101	443	11011101	507	RESERVED
316	10011101	380	10111101	444	11011101	508	RESERVED
317	10011110	381	10111110	445	11011110	509	RESERVED
318	10011110	382	10111110	446	11011110	510	RESERVED
319	10011110	383	10111110	447	11011110	511	RESERVED
320	10011111	384	10111111	448	11011111	512	RESERVED

PROGRAMMING THE ACTIVATION LEVEL

The activation level is the slot value at which the output relay starts to turn on. It is programmable from 0 to 255. The programmable activation level feature is available on units shipped from 12 June 2023.

By default, the activation level is programmed to 1: 0 – Off / 1 to 255 – On.

To program the activation level, follow the steps below:

1. Ensure DMX-RL8 is powered off and DMX signal is removed.
2. Set DIP switch to 111111110. Turn power on.
3. Turn power off. Set DIP switch to 111111101. Turn power on. ST LED flashes 5 times.
4. Turn power off. Set DIP switch to 111111011. Turn power on. ST LED flashes 5 times.
5. Turn power off. Set DIP switch to 0nnnnnnnn, where nnnnnnnn is the activation level expressed in binary. Turn power on. ST LED turns remains on and steady.
6. Set DIP switch to 1nnnnnnnn (turn on '256' position switch). ST LED flashes 5 times.
7. New activation level is programmed.

Example:

Activation level – 128 (binary value – 10000000)

1. Connect power to DMX-RL8 using a switch and ensure power switch is off.
2. Set DIP switch to 111111110. Turn power switch on.
3. Turn power switch off. Set DIP switch to 111111101.
4. Turn power switch on. Observe ST LED flash 5 times.
5. Turn power switch off. Set DIP switch to 111111011.
6. Turn power switch on. Observe ST LED flash 5 times.
7. Turn power switch off. Set DIP switch to 010000000.
8. Turn power switch on. Observe ST LED turn on and remain on.
9. Set DIP switch to 110000000 (only turn on '256' position switch). Observe ST LED flash 5 times.
10. New activation level is programmed. New activation values: 0 to 127 – Off / 128 to 255 – On.