



## FEATURES

- Outputs: 4 channels
- BUS+SEQUENCER+FADER+DIMMER+DRIVER
- Input: DC 12/24 Vdc
- BUS Command: DMX512-A+RDM, DALI
- Control: dimmer, dim to warm, Tunable White, RGB, RGBW, RGBA
- Voltage outputs for R loads
- Typical efficiency > 95%
- Adjusting the brightness up to completed off (Dim to Dark)
- Level minimum of brightness: 0.1%
- D-PWM modulation
- Adjusting D-PWM frequency: 600 / 1200 Hz
- Adjusting output curve:
  - Linear / Exponential variant DMX
  - Linear / Logarithmic variant DALI
- Soft start and soft stop
- Soft dimming regulation
- Extended temperature range
- 100% Functional Test – 5 Years warranty

→ For the whole and update Device Manual refer to producer's website: <http://www.dalcnet.com>

### ➤ CONSTANT VOLTAGE VARIANT (common anode)

Application (4 – output channel): Dimmer, Dim to Warm, Tunable White, RGB, RGBW, RGBA

CODE	Supply Voltage	Output	Channel	Command	
DLP1224-4CV-DMX	12/24V DC	4x5A (max 20A tot.)	4	DMX	PROFESSIONAL
DLP1224-4CV-DMX-RJ45	12/24V DC	4x5A (max 20A tot.)	4	DMX	PROFESSIONAL
DLP1224-4CV-DALI	12/24V DC	4x5A (max 20A tot.)	4	DALI	PROFESSIONAL

### ➤ PROTECTION

		DLP1224-4CV-DALI	DLP1224-4CV-DMX/RJ45
<b>OVP</b>	Over voltage protection <sup>1</sup>	✓	✓
<b>UVP</b>	Under voltage protection <sup>1</sup>	✓	✓
<b>RVP</b>	Reverse polarity protection <sup>1</sup>	✓	✓
<b>IFP</b>	Input fuse protection <sup>1</sup>	✓	✓

<sup>1</sup> Only control logic protection



## ➤ REFERENCE STANDARDS

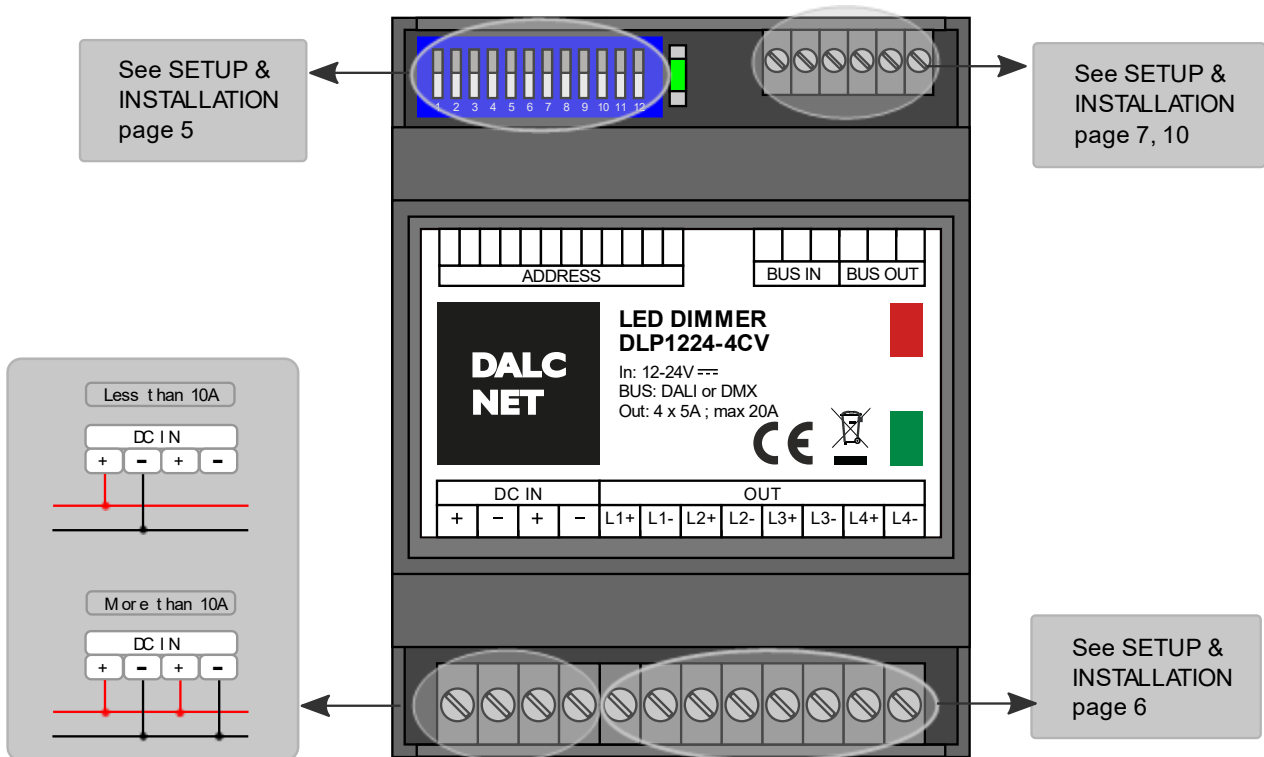
EN 61347-1	Lamp controlgear - Part 1: General and safety requirements
EN 55015	Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
EN 61547	Equipment for general lighting purposes - EMC immunity requirements
EN 50581	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances
IEC/EN 62386-101	Digital addressable lighting interface - Part 101: General requirements - System
IEC/EN 62386-102	Digital addressable lighting interface - Part 102: General requirements - Control gear
IEC/EN 62386-207	Digital addressable lighting interface - Part 207: Particular requirements for control gear – LED modules (device type 6)
ANSI E1.11	Entertainment Technology - USITT DMX512-A - Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories
ANSI E1.20	Entertainment Technology-RDM-Remote Device Management over USITT DMX512 Networks

## ➤ TECHNICAL SPECIFICATION

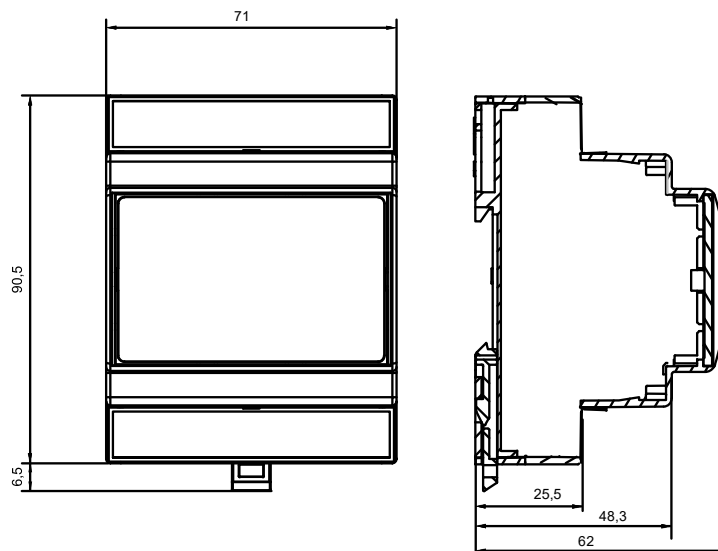
		Variant Constant Voltage	
Supply Voltage		DC min: 10,8 Vdc .. max: 26,4 Vdc	
Output Voltage		=Vin	
Input Current		max 20A	
Output Current		@ ch	Total
		4 x 5A	max 20A TOTAL
Nominal power <sup>2</sup>	@12V	60 W/ch	240 W total
	@24V	120 W/ch	480 W total
Power loss in standby mode		<500mW	
Type Load		R	
D-PWM Dimming Frequency		600Hz – 1200Hz	
D-PWM Resolution		16 bit	
D-PWM Range		0,1% - 100%	
Storage Temperature		min: -40 max: +60 °C	
Ambient temperature <sup>2</sup>		min: -40 max: +60 °C	
Power & Leds Wiring		Power & Leds: 2.5mm <sup>2</sup> - 30/12 AWG	
Power & Leds Wiring preparation length		5,5-6,5 mm	
Bus Wiring		Bus: 1.5mm <sup>2</sup> – 30/16 AWG	
Bus Wiring preparation length		5-6 mm	
Protection Grade		IP10	
Casing material		Plastic	
Packaging unit (pieces/unit)		Single Carton Box 1pz	Carton Box 4 pz
Mechanical Dimension		72 x 92 x 62 mm – DIN RAIL 4mod.	72 x 92 x 62 mm – DIN RAIL 4mod.
Packaging Dimension		124 x 85 x 71 mm	263 x 178 x 82 mm
Weight		140 g	800 g

<sup>2</sup> maximum value, dependent on the ventilation conditions

### ➤ INSTALLATION



### ➤ MECHANICAL DIMENSION





## ➤ TECHNICAL NOTES

### Installation:

- Installation and maintenance must be performed only by qualified personnel in compliance with current regulations.
- The product must be installed inside an electrical panel protected against overvoltages.
- The product must be installed in a vertical or horizontal position with the cover / label upwards or vertically; Other positions are not permitted. It is not permitted to bottom-up position (with the cover / label down).
- Keep separated the circuits at 230V (LV) and the circuits not SELV from circuits to low voltage (SELV) and from any connection with this product. It is absolutely forbidden to connect, for any reason whatsoever, directly or indirectly, the 230V mains voltage to the bus or to other parts of the circuit.

### Power supply:

- For the power supply use only a SELV power supplies with limited current, short circuit protection and the power must be dimensioned correctly. In case of using power supply with ground terminals, all points of the protective earth (PE = Protection Earth) must be connected to a valid and certified protection earth.
- The connection cables between the power source "low voltage" and the product must be dimensioned correctly and they should be isolated from every wiring or parts at voltage not SELV. Use double insulated cables.
- In case of output currents higher at 10A, connect at the power supply both pairs of power supply input "V+" and "V-".
- Dimension the power supply for the load connected to the device. If the power supply is oversized compared with the maximum absorbed current, insert a protection against over-current between the power supply and the device.

### Command:

- The length of the connection cables at the BUS (DMX512, DALI or other) use cables as per specification of the respective protocols and regulations and they should be isolated from every wiring or parts at voltage not SELV. Use double insulated shielded and twisted cables.
- All the product and the control signal connect at the BUS (DMX512, DALI or other) must be SELV (the devices connected must be SELV or supply a SELV signal)

### Outputs:

- The length of the connection cables between the product and the LED module must be less than 10m; the cables must be dimensioned correctly and they should be isolated from every wiring or parts at voltage not SELV. Is preferable to use shielded and twisted cables.



### ➤ SETUP & INSTALLATION

A 12 way dip-switch can provide a rich set of possible configurations.

Notes: Factory position = all OFF

Function		<ul style="list-style-type: none"> <li>Switches from 1 to 9: <b>Addressing</b></li> <li>Switch 10: <b>Reserved</b></li> <li>Switch 11: <b>Curve</b></li> <li>Switch 12: <b>Output frame rate (freq.)</b></li> </ul>
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1) Select the Address by dip-switch: Switches from 1 to 9

DMX ADDRESSING		
000 (default)		Address defined by RDM
From 001		to 511 Addressing DMX, from 1 to 511

DALI ADDRESSING		
000 (default)		Address defined by DALI
From 001		to 64 Addressing DALI, from 0 to 63

2) Set Dimming Curve: Switch 11


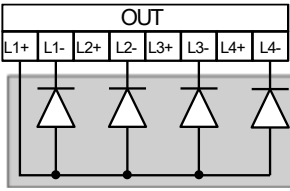
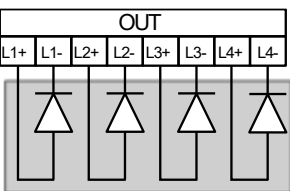
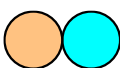
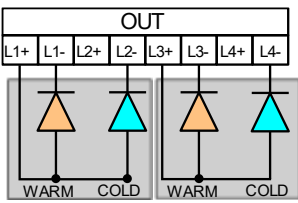
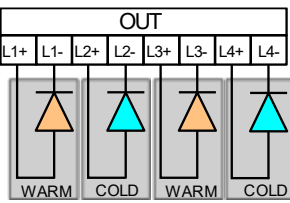
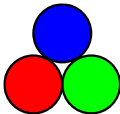
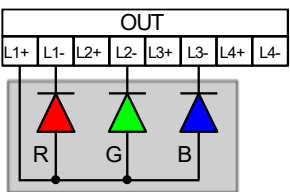
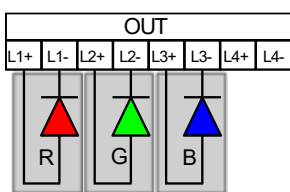
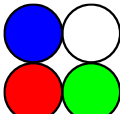
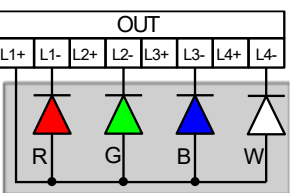
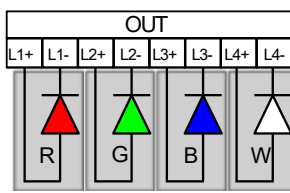
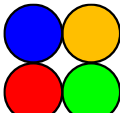
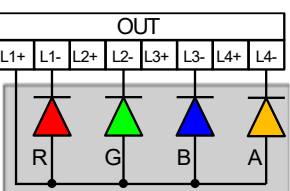
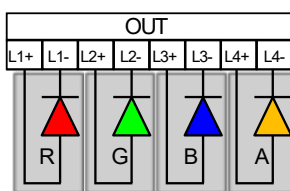
DMX VARIANT			
Exponential Curve		Linear Curve	

DALI VARIANT			
Logarithmic Curve		Linear Curve	

3) Set Output Frequency: Switch 12

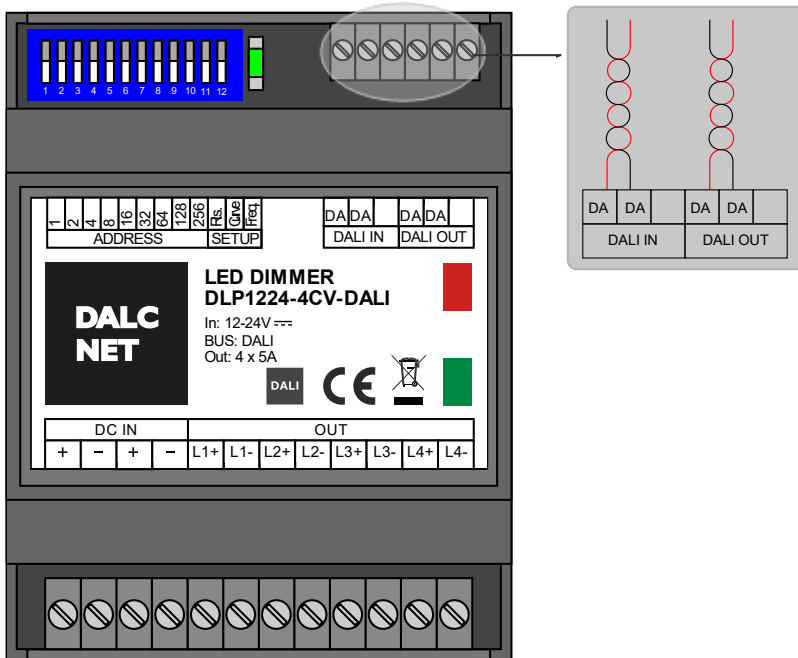
600Hz		1200Hz	
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➤ **RECOMMENDED WIRING ACCORDING TO THE TYPE OF LED LOAD**

Type of Load	Description	Connections (total current 0 – 10A max)	Connections (total current 0 – 20A max)
	White, up to 4 loads		
	Tunable White, up to 2 loads		
	RGB		
	RGBW		
	RGBA		

### ➤ DALI BUS SETUP

In DALI BUS SETUP all the leds are controlled by an external DALI controller.



### FEATURES

- DALI Bus

### DALI BUS REFERENCE STANDARDS

IEC/EN 62386-101	Digital addressable lighting interface – Part 101: General requirements – System
IEC/EN 62386-102	Digital addressable lighting interface – Part 102: General requirements – Control gear
IEC/EN 62386-207	Digital addressable lighting interface – Part 207: General requirements for control gear – LED modules (device type 6)

### ONBOARD LED:

- In the case of no bus power detected, or bus error, the led blinks fast (2 pulses per second).
- In the case there is the bus power but there isn't data command, the led blinks slowly (1 pulse per second)
- In the case of data link is active, the led remains on fixed.

### ADDRESSING:

By selectors	✓
Simplified method (One ballast connected at a time)	✓
Random Address Allocation	✓



Addressing by dip-switch:

DALI ADDRESSING			
000 (default)			Address defined by DALI
From 001		to 64	Manual Addressing DALI, from 0 to 63

Table of address through dip-switch:

Addr	Set dip-switch	Addr	Set dip-switch	Addr	Set dip-switch	Addr	Set dip-switch	Addr	Set dip-switch
	123456789		123456789		123456789		123456789		123456789
<b>DALI</b>	000000000	<b>13</b>	101100000	<b>26</b>	010110000	<b>39</b>	111001000	<b>52</b>	001011000
<b>1</b>	100000000	<b>14</b>	011100000	<b>27</b>	110110000	<b>40</b>	000101000	<b>53</b>	101011000
<b>2</b>	010000000	<b>15</b>	111100000	<b>28</b>	001110000	<b>41</b>	100101000	<b>54</b>	011011000
<b>3</b>	110000000	<b>16</b>	000010000	<b>29</b>	101110000	<b>42</b>	010101000	<b>55</b>	111011000
<b>4</b>	001000000	<b>17</b>	100010000	<b>30</b>	011110000	<b>43</b>	110101000	<b>56</b>	000111000
<b>5</b>	101000000	<b>18</b>	010010000	<b>31</b>	111110000	<b>44</b>	001101000	<b>57</b>	100111000
<b>6</b>	011000000	<b>19</b>	110010000	<b>32</b>	000001000	<b>45</b>	101101000	<b>58</b>	010111000
<b>7</b>	111000000	<b>20</b>	001010000	<b>33</b>	100001000	<b>46</b>	011101000	<b>59</b>	110111000
<b>8</b>	000100000	<b>21</b>	101010000	<b>34</b>	010001000	<b>47</b>	111101000	<b>60</b>	001111000
<b>9</b>	100100000	<b>22</b>	011010000	<b>35</b>	110001000	<b>48</b>	000011000	<b>61</b>	101111000
<b>10</b>	010100000	<b>23</b>	111010000	<b>36</b>	001001000	<b>49</b>	100011000	<b>62</b>	011111000
<b>11</b>	110100000	<b>24</b>	000110000	<b>37</b>	101001000	<b>50</b>	010011000	<b>63</b>	111111000
<b>12</b>	001100000	<b>25</b>	100110000	<b>38</b>	011001000	<b>51</b>	110011000	<b>64</b>	00000100

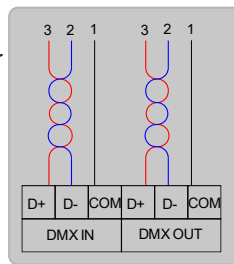
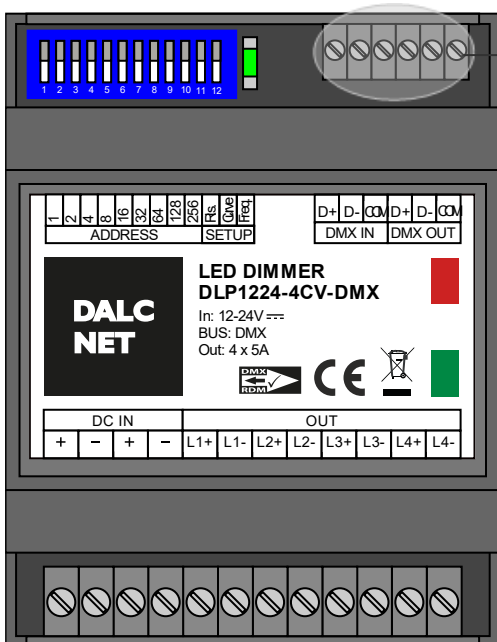






### ➤ DMX+RDM BUS SETUP

With the **BUS DMX+RDM** in the "slave" condition the outputs are managed by an external DMX controller.



Use	3-Pin XLR Pin #	DMX512 Function
Common Reference	1	Data Link Common
Primary Data Link	2	Data 1-
	3	Data 1+
Secondary Data Link (Optional – see clause 4.8)	4	Data 2-
	5	Data 2+

### FEATURES

- BUS DMX512-A (NSC+RDM)

### DMX+RDM BUS REFERENCE STANDARDS

ANSI E1.11	Entertainment Technology – USITT DMX512-A – Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories
ANSI E1.20	Entertainment Technology-RDM-Remote Device Management over USITT DMX512 Networks

### TECHNICAL SPECIFICATIONS:

Standard DMX512-A/RDM

### ONBOARD LED:

In the case of bus error, the led blinks fast (2 pulse per second).

In the case that the BUS is not detected correctly, the leds blinks slowly (1 pulse per second)

In the case of data link is active, the led remains on fixed.

### ADDRESSING:

RDM	✓
By selectors	✓

### ADDRESSING BY DIP-SWITCH:

DMX ADDRESSING		
000 (default)		Address defined by RDM
From 001		to 511 Manual Addressing DMX, from 1 to 511

Table of address through dip-switch:

CH	Set dip-switch 123456789	CH	Set dip-switch 123456789	CH	Set dip-switch 123456789	CH	Set dip-switch 123456789	CH	Set dip-switch 123456789
RDM	000000000	46	011101000	92	001110100	138	010100010	184	000111010
1	100000000	47	111101000	93	101110100	139	110100010	185	100111010
2	010000000	48	000011000	94	011110100	140	001100010	186	010111010
3	110000000	49	100011000	95	111110100	141	101100010	187	110111010
4	001000000	50	010011000	96	000011000	142	011100010	188	001111010
5	101000000	51	110011000	97	100011000	143	111100010	189	101111010
6	011000000	52	001011000	98	010011000	144	000010010	190	011111010
7	111000000	53	101011000	99	110011000	145	100010010	191	111111010
8	000100000	54	011011000	100	001001100	146	010010010	192	000001100
9	100100000	55	111011000	101	101001100	147	110010010	193	100001100
10	010100000	56	000111000	102	011001100	148	001010010	194	010001100
11	110100000	57	100111000	103	111001100	149	101010010	195	110001100
12	001100000	58	010111000	104	000101100	150	011010010	196	001000110
13	101100000	59	110111000	105	100101100	151	111010010	197	101000110
14	011100000	60	001111000	106	010101100	152	000110010	198	011000110
15	111100000	61	101111000	107	110101100	153	100110010	199	111000110
16	000010000	62	011111000	108	001101100	154	010110010	200	000100110
17	100010000	63	111111000	109	101101100	155	110110010	201	100100110
18	010010000	64	000001000	110	011101100	156	001110010	202	010100110
19	110010000	65	100001000	111	111101100	157	101110010	203	110100110
20	001010000	66	010001000	112	000011100	158	011110010	204	001100110
21	101010000	67	110001000	113	100011100	159	111110010	205	101100110
22	011010000	68	001000100	114	010011100	160	000001010	206	011100110
23	111010000	69	101000100	115	110011100	161	100001010	207	111100110
24	000110000	70	011000100	116	001011100	162	010001010	208	000010110
25	100110000	71	111000100	117	101011100	163	110001010	209	100010110
26	010110000	72	000100100	118	011011100	164	001001010	210	010010110
27	110110000	73	100100100	119	111011100	165	101001010	211	110010110
28	001110000	74	010100100	120	000111100	166	011001010	212	001010110
29	101110000	75	110100100	121	100111100	167	111001010	213	101010110
30	011110000	76	001100100	122	010111100	168	000101010	214	011010110
31	111110000	77	101100100	123	110111100	169	100101010	215	111010110
32	000001000	78	011100100	124	001111100	170	010101010	216	000110110
33	100001000	79	111100100	125	101111100	171	110101010	217	100110110
34	010001000	80	000010100	126	011111100	172	001101010	218	010110110
35	110001000	81	100010100	127	111111100	173	101101010	219	110110110
36	001001000	82	010010100	128	000000010	174	011101010	220	001110110
37	101001000	83	110010100	129	100000010	175	111101010	221	101110110
38	011001000	84	001010100	130	010000010	176	00001010	222	011110110
39	111001000	85	101010100	131	110000010	177	100011010	223	111110110
40	000101000	86	011010100	132	001000010	178	010011010	224	00000110
41	100101000	87	111010100	133	101000010	179	110011010	225	100001110
42	010101000	88	000110100	134	011000010	180	001011010	226	010001110
43	110101000	89	100110100	135	111000010	181	101011010	227	110001110
44	001101000	90	010110100	136	000100010	182	011011010	228	001001110
45	101101000	91	110110100	137	100100010	183	111011010	229	101001110



## Device Manual

CH	Set dip-switch 123456789	CH	Set dip-switch 123456789	CH	Set dip-switch 123456789	CH	Set dip-switch 123456789	CH	Set dip-switch 123456789
230	011001110	276	001010001	322	010000101	368	000011101	414	011110011
231	111001110	277	101010001	323	110000101	369	100011101	415	111110011
232	000101110	278	011010001	324	001000101	370	010011101	416	000001011
233	100101110	279	111010001	325	101000101	371	110011101	417	100001011
234	010101110	280	000110001	326	011000101	372	001011101	418	010001011
235	110101110	281	100110001	327	111000101	373	101011101	419	110001011
236	001101110	282	010110001	328	000100101	374	011011101	420	001001011
237	101101110	283	110110001	329	100100101	375	111011101	421	101001011
238	011101110	284	001110001	330	010100101	376	000111101	422	011001011
239	111101110	285	101110001	331	110100101	377	100111101	423	111001011
240	000011110	286	011110001	332	001100101	378	010111101	424	000101011
241	100011110	287	111110001	333	101100101	379	110111101	425	100101011
242	010011110	288	000001001	334	011100101	380	001111101	426	010101011
243	110011110	289	100001001	335	111100101	381	101111101	427	110101011
244	001011110	290	010001001	336	000010101	382	011111101	428	001101011
245	101011110	291	110001001	337	100010101	383	111111101	429	101101011
246	011011110	292	001001001	338	010010101	384	000000011	430	011101011
247	111011110	293	101001001	339	110010101	385	100000011	431	111101011
248	000111110	294	011001001	340	001010101	386	010000011	432	000011011
249	100111110	295	111001001	341	101010101	387	110000011	433	100011011
250	010111110	296	000101001	342	011010101	388	001000011	434	010011011
251	110111110	297	100101001	343	111010101	389	101000011	435	110011011
252	001111110	298	010101001	344	000110101	390	011000011	436	001011011
253	101111110	299	110101001	345	100110101	391	111000011	437	101011011
254	011111110	300	001101001	346	010110101	392	000100011	438	011011011
255	111111110	301	101101001	347	110110101	393	100100011	439	111011011
256	000000001	302	011101001	348	001110101	394	010100011	440	000111011
257	100000001	303	111101001	349	101110101	395	110100011	441	100111011
258	010000001	304	000011001	350	011110101	396	001100011	442	010111011
259	110000001	305	100011001	351	111110101	397	101100011	443	110111011
260	001000001	306	010011001	352	000001101	398	011100011	444	001111011
261	101000001	307	110011001	353	100001101	399	111100011	445	101111011
262	011000001	308	001011001	354	010001101	400	000010011	446	011111011
263	111000001	309	101011001	355	110001101	401	100010011	447	111111011
264	000100001	310	011011001	356	001001101	402	010010011	448	000000111
265	100100001	311	111011001	357	101001101	403	110010011	449	100000111
266	010100001	312	000111001	358	011001101	404	001010011	450	010000111
267	110100001	313	100111001	359	111001101	405	101010011	451	110000111
268	001100001	314	010111001	360	000101101	406	011010011	452	001000111
269	101100001	315	110111001	361	100101101	407	111010011	453	101000111
270	011100001	316	001111001	362	010101101	408	000110011	454	011000111
271	111100001	317	101111001	363	110101101	409	100110011	455	111000111
272	000010001	318	011111001	364	001101101	410	010110011	456	000100111
273	100010001	319	111111001	365	101101101	411	110110011	457	100100111
274	010010001	320	000000101	366	011101101	412	001110011	458	010100111
275	110010001	321	100000101	367	111101101	413	101110011	459	110100111

CH	Set dip-switch	CH	Set dip-switch
	123456789		123456789
460	001100111	506	010111111
461	101100111	507	110111111
462	011100111	508	001111111
463	111100111	509	101111111
464	000010111	510	011111111
465	100010111	511	111111111
466	010010111		
467	110010111		
468	001010111		
469	101010111		
470	011010111		
471	111010111		
472	000110111		
473	100110111		
474	010110111		
475	110110111		
476	001110111		
477	101110111		
478	011110111		
479	111110111		
480	000001111		
481	100001111		
482	010001111		
483	110001111		
484	001001111		
485	101001111		
486	011001111		
487	111001111		
488	000101111		
489	100101111		
490	010101111		
491	110101111		
492	001101111		
493	101101111		
494	011101111		
495	111101111		
496	000011111		
497	100011111		
498	010011111		
499	110011111		
500	001011111		
501	101011111		
502	011011111		
503	111011111		
504	000111111		
505	100111111		

## ➤ RDM COMMANDS

REQUIREMENTS PARAMETERS	
DISC_UNIQUE_BRANCH	✓
DISC_UN_MUTE	✓
SUPPORTED_PARAMETERS	✓
PARAMETERS_DESCRIPTION	✓
DEVICE_INFO	✓
SOFTWARE_VERSION_LABEL	✓
DMX_START_ADDRESS	✓
IDENTIFY_DEVICE	✓

SUPPORTED PARAMETERS	
PRODUCT_DETAIL_ID_LIST	✓
DEVICE_MODEL_DESCRIPTION	✓
MANUFACTURER_LABEL	✓
DEVIDE_LABEL	✓
BOOT_SOFTWARE_VERSION_ID	✓
BOOT_SOFTWARE_VERSION_LABEL	✓
DMX_PERSONALITY	✓
DMX_PERSONALITY_DESCRIPTION	✓
SLOT_INFO	✓
SLOT_DESCRIPTION	✓
DEFAULT_SLOT_VALUE	✓