



**User Manual for
Chroma-Q CQ1/D
Chroma-Q Broadway
Chroma-Q M-Range**

Version 6.1 February 2001

Table of DMX Binary Address Settings 385-512

NOTE:

The current version of the Chroma-Q range uses a "digital" control card, a binary DMX address switch and a different method of gel string calibration and fixing.

Please read this manual and the gel fitting supplement before using the product.

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 Tourflex® is a registered trademark of A.C. Lighting Ltd
 Tourflex Datasafe is a trademark of A.C. Lighting Ltd
 Pro Color is a trademark of A.C. Lighting Ltd

The rights and ownership of all trademarks are recognised

DMX ADDRESS	BINARY SWITCH SETTING								DMX ADDRESS	BINARY SWITCH SETTING										
	1	2	4	8	16	32	64	128		256	1	2	4	8	16	32	64	128	256	
385	ON							ON	ON	449	ON						ON	ON	ON	
386		ON							ON	ON	450		ON					ON	ON	ON
387	ON	ON							ON	ON	451	ON	ON					ON	ON	ON
388			ON						ON	ON	452			ON				ON	ON	ON
389	ON		ON						ON	ON	453	ON		ON				ON	ON	ON
390		ON	ON						ON	ON	454		ON	ON				ON	ON	ON
391	ON	ON	ON						ON	ON	455	ON	ON	ON				ON	ON	ON
392				ON					ON	ON	456				ON			ON	ON	ON
393	ON			ON					ON	ON	457	ON			ON			ON	ON	ON
394		ON		ON					ON	ON	458		ON		ON			ON	ON	ON
395	ON	ON		ON					ON	ON	459	ON	ON		ON			ON	ON	ON
396			ON	ON					ON	ON	460			ON	ON			ON	ON	ON
397	ON		ON	ON					ON	ON	461	ON		ON	ON			ON	ON	ON
398		ON	ON	ON					ON	ON	462		ON	ON	ON			ON	ON	ON
399	ON	ON	ON	ON					ON	ON	463	ON	ON	ON	ON			ON	ON	ON
400					ON				ON	ON	464					ON		ON	ON	ON
401	ON				ON				ON	ON	465	ON				ON		ON	ON	ON
402		ON			ON				ON	ON	466		ON			ON		ON	ON	ON
403	ON	ON			ON				ON	ON	467	ON	ON			ON		ON	ON	ON
404			ON		ON				ON	ON	468			ON		ON		ON	ON	ON
405	ON		ON		ON				ON	ON	469	ON		ON		ON		ON	ON	ON
406		ON	ON		ON				ON	ON	470		ON	ON		ON		ON	ON	ON
407	ON	ON	ON		ON				ON	ON	471	ON	ON	ON		ON		ON	ON	ON
408				ON	ON				ON	ON	472				ON	ON		ON	ON	ON
409	ON				ON	ON			ON	ON	473	ON			ON	ON		ON	ON	ON
410		ON			ON	ON			ON	ON	474		ON		ON	ON		ON	ON	ON
411	ON	ON			ON	ON			ON	ON	475	ON	ON		ON	ON		ON	ON	ON
412			ON	ON	ON				ON	ON	476			ON	ON	ON		ON	ON	ON
413	ON			ON	ON	ON			ON	ON	477	ON		ON	ON	ON		ON	ON	ON
414		ON	ON	ON	ON				ON	ON	478		ON	ON	ON	ON		ON	ON	ON
415	ON	ON	ON	ON	ON				ON	ON	479	ON	ON	ON	ON	ON		ON	ON	ON
416						ON			ON	ON	480						ON	ON	ON	ON
417	ON					ON			ON	ON	481	ON					ON	ON	ON	ON
418		ON				ON			ON	ON	482		ON				ON	ON	ON	ON
419	ON	ON				ON			ON	ON	483	ON	ON				ON	ON	ON	ON
420			ON			ON			ON	ON	484			ON			ON	ON	ON	ON
421	ON		ON			ON			ON	ON	485	ON		ON			ON	ON	ON	ON
422		ON	ON			ON			ON	ON	486		ON	ON			ON	ON	ON	ON
423	ON	ON	ON			ON			ON	ON	487	ON	ON	ON			ON	ON	ON	ON
424				ON		ON			ON	ON	488				ON		ON	ON	ON	ON
425	ON				ON	ON			ON	ON	489	ON	ON				ON	ON	ON	ON
426		ON			ON	ON			ON	ON	490		ON				ON	ON	ON	ON
427	ON	ON			ON	ON			ON	ON	491	ON	ON		ON		ON	ON	ON	ON
428			ON	ON		ON			ON	ON	492			ON	ON		ON	ON	ON	ON
429	ON		ON	ON		ON			ON	ON	493	ON		ON	ON		ON	ON	ON	ON
430		ON	ON	ON		ON			ON	ON	494		ON	ON	ON		ON	ON	ON	ON
431	ON	ON	ON	ON		ON			ON	ON	495	ON	ON	ON	ON		ON	ON	ON	ON
432					ON				ON	ON	496					ON	ON	ON	ON	ON
433	ON				ON	ON			ON	ON	497	ON				ON	ON	ON	ON	ON
434		ON			ON	ON			ON	ON	498		ON			ON	ON	ON	ON	ON
435	ON	ON			ON	ON			ON	ON	499	ON	ON			ON	ON	ON	ON	ON
436			ON		ON	ON			ON	ON	500			ON		ON	ON	ON	ON	ON
437	ON		ON		ON	ON			ON	ON	501	ON	ON			ON	ON	ON	ON	ON
438		ON	ON		ON	ON			ON	ON	502		ON	ON		ON	ON	ON	ON	ON
439	ON	ON	ON		ON	ON			ON	ON	503	ON	ON	ON		ON	ON	ON	ON	ON
440				ON	ON	ON			ON	ON	504				ON	ON	ON	ON	ON	ON
441	ON				ON	ON			ON	ON	505	ON			ON	ON	ON	ON	ON	ON
442		ON			ON	ON			ON	ON	506		ON		ON	ON	ON	ON	ON	ON
443	ON	ON			ON	ON			ON	ON	507	ON	ON		ON	ON	ON	ON	ON	ON
444			ON	ON	ON	ON			ON	ON	508			ON	ON	ON	ON	ON	ON	ON
445	ON		ON	ON	ON	ON			ON	ON	509	ON		ON	ON	ON	ON	ON	ON	ON
446		ON	ON	ON	ON	ON			ON	ON	510		ON	ON	ON	ON	ON	ON	ON	ON
447	ON	ON	ON	ON	ON	ON			ON	ON	511	ON	ON	ON	ON	ON	ON	ON	ON	ON
448								ON	ON	ON	512									

Table of DMX Binary Address Settings 257-384

DMX ADDRESS	BINARY SWITCH SETTING								DMX ADDRESS	BINARY SWITCH SETTING									
	1	2	4	8	16	32	64	128		256	1	2	4	8	16	32	64	128	256
257	ON								ON	321	ON							ON	ON
258		ON							ON	322		ON						ON	ON
259	ON	ON							ON	323	ON	ON						ON	ON
260			ON						ON	324			ON					ON	ON
261	ON		ON						ON	325	ON		ON					ON	ON
262		ON	ON						ON	326		ON	ON					ON	ON
263	ON	ON	ON						ON	327	ON	ON	ON					ON	ON
264				ON					ON	328				ON				ON	ON
265	ON			ON					ON	329	ON			ON				ON	ON
266		ON		ON					ON	330		ON		ON				ON	ON
267	ON	ON		ON					ON	331	ON	ON		ON				ON	ON
268			ON	ON					ON	332			ON	ON				ON	ON
269	ON		ON	ON					ON	333	ON		ON	ON				ON	ON
270		ON	ON	ON					ON	334		ON	ON	ON				ON	ON
271	ON	ON	ON	ON					ON	335	ON	ON	ON	ON				ON	ON
272					ON				ON	336					ON			ON	ON
273	ON				ON				ON	337	ON				ON			ON	ON
274		ON			ON				ON	338		ON			ON			ON	ON
275	ON	ON			ON				ON	339	ON	ON			ON			ON	ON
276			ON		ON				ON	340			ON		ON			ON	ON
277	ON		ON		ON				ON	341	ON		ON		ON			ON	ON
278		ON	ON		ON				ON	342		ON	ON		ON			ON	ON
279	ON	ON	ON		ON				ON	343	ON	ON	ON		ON			ON	ON
280				ON	ON				ON	344				ON	ON			ON	ON
281	ON			ON	ON				ON	345	ON			ON	ON			ON	ON
282		ON		ON	ON				ON	346		ON		ON	ON			ON	ON
283	ON	ON		ON	ON				ON	347	ON	ON		ON	ON			ON	ON
284			ON	ON	ON				ON	348			ON	ON	ON			ON	ON
285	ON		ON	ON	ON				ON	349	ON		ON	ON	ON			ON	ON
286		ON	ON	ON	ON				ON	350		ON	ON	ON	ON			ON	ON
287	ON	ON	ON	ON	ON				ON	351	ON	ON	ON	ON	ON			ON	ON
288						ON			ON	352						ON		ON	ON
289	ON					ON			ON	353	ON					ON	ON	ON	ON
290		ON				ON			ON	354		ON				ON	ON	ON	ON
291	ON	ON				ON			ON	355	ON	ON				ON	ON	ON	ON
292			ON			ON			ON	356			ON			ON	ON	ON	ON
293	ON		ON			ON			ON	357	ON		ON			ON	ON	ON	ON
294		ON	ON			ON			ON	358		ON	ON			ON	ON	ON	ON
295	ON	ON	ON			ON			ON	359	ON	ON	ON			ON	ON	ON	ON
296				ON		ON			ON	360				ON		ON	ON	ON	ON
297	ON				ON	ON			ON	361	ON				ON	ON	ON	ON	ON
298		ON			ON	ON			ON	362		ON			ON	ON	ON	ON	ON
299	ON	ON			ON	ON			ON	363	ON	ON			ON	ON	ON	ON	ON
300			ON	ON		ON			ON	364			ON	ON		ON	ON	ON	ON
301	ON		ON	ON		ON			ON	365	ON		ON	ON		ON	ON	ON	ON
302		ON	ON	ON		ON			ON	366		ON	ON	ON		ON	ON	ON	ON
303	ON	ON	ON	ON		ON			ON	367	ON	ON	ON	ON		ON	ON	ON	ON
304					ON	ON			ON	368					ON		ON	ON	ON
305	ON				ON	ON			ON	369	ON				ON	ON	ON	ON	ON
306		ON			ON	ON			ON	370		ON			ON	ON	ON	ON	ON
307	ON	ON			ON	ON			ON	371	ON	ON			ON	ON	ON	ON	ON
308			ON		ON	ON			ON	372				ON	ON	ON	ON	ON	ON
309	ON		ON		ON	ON			ON	373	ON		ON		ON	ON	ON	ON	ON
310		ON	ON		ON	ON			ON	374		ON	ON		ON	ON	ON	ON	ON
311	ON	ON	ON		ON	ON			ON	375	ON	ON	ON		ON	ON	ON	ON	ON
312				ON	ON	ON			ON	376				ON	ON	ON	ON	ON	ON
313	ON			ON	ON	ON			ON	377	ON			ON	ON	ON	ON	ON	ON
314		ON		ON	ON	ON			ON	378		ON		ON	ON	ON	ON	ON	ON
315	ON	ON		ON	ON	ON			ON	379	ON	ON		ON	ON	ON	ON	ON	ON
316			ON	ON	ON	ON			ON	380			ON	ON	ON	ON	ON	ON	ON
317	ON		ON	ON	ON	ON			ON	381	ON		ON	ON	ON	ON	ON	ON	ON
318		ON	ON	ON	ON	ON			ON	382		ON	ON	ON	ON	ON	ON	ON	ON
319	ON	ON	ON	ON	ON	ON			ON	383	ON	ON	ON	ON	ON	ON	ON	ON	ON
320							ON		ON	384								ON	ON

Product Overview

The Chroma-Q is designed to be one of the most reliable colour changers available. The utilization of digital circuitry and high technology composite materials, produces an affordable colour changer which is capable of scrolling gel strings of various lengths from 2 to 16 colours.

The Chroma-Q is designed to give years of trouble free use, providing that it is regularly adjusted and used in accordance with the instructions detailed in this manual. If you should experience any problems which fall outside of the scope of this manual, contact the selling dealer for further details. Like any electro-mechanical product the Chroma-Q is not designed to operate in wet or excessively humid conditions.

If the selling dealer is unable to satisfy your servicing needs, contact A.C. Lighting directly for full factory service:

Outside North America:

A.C. Lighting Ltd
Centauri House,
Hillbottom Road, Sands
High Wycombe, Bucks
HP12 4HQ England
Tel: +44 (0)1494 446000
Fax: +44 (0)1494 461024

North America:

A.C. Lighting (Canada) Ltd.
Unit #1, 435 Horner Avenue,
Toronto, ON. M8W 4W3
Canada
Tel: +1 416-255-9494
Fax: +1 416-255-3514

Product Description

The Chroma Q will read USITT DMX512 (1990) protocol, which enables individual addressing of each unit. This allows for easy grouping of multiple units. The units are individually addressed by setting the 10 pin binary dip switch (three rotary switches on M5 & M8), as displayed in the panel views on page 4 and the instructions on page 6 section b.

The Chroma-Q is supplied power and control signals by means of a XLR 4-pin connector. The XLR 4-pin output may then be used to connect other units in turn on the same line. Each chain line must be terminated by connecting the output cable from the last unit in the chain to the corresponding return connection on the PSU / Splitter box, as shown in the System Diagram on page 6

Note: For the optimum performance of a system the Chroma-Q colour changer maximum cable length per distribution line must not exceed 61mtrs. (200ft.) including the return to the PSU / Splitter box.

The Chroma-Q is equipped with an integral cooling fan. Each unit is also equipped with three diagnostic LED indicators (found on the underside of the unit); showing Power, DMX signal and DMX level (see section j - Troubleshooting on page 8 for full details).

The Digital Chroma-Q

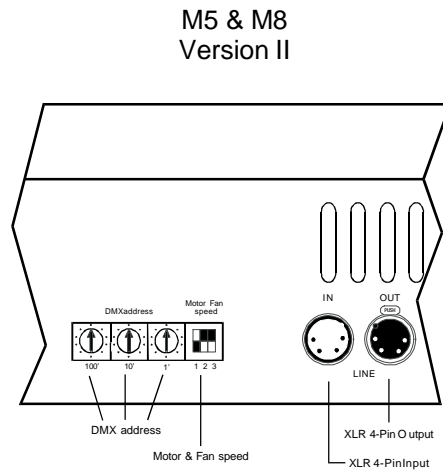
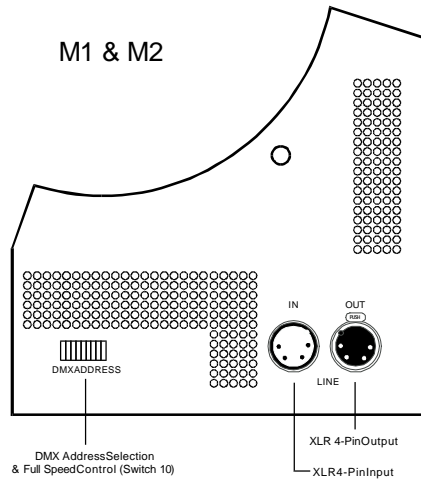
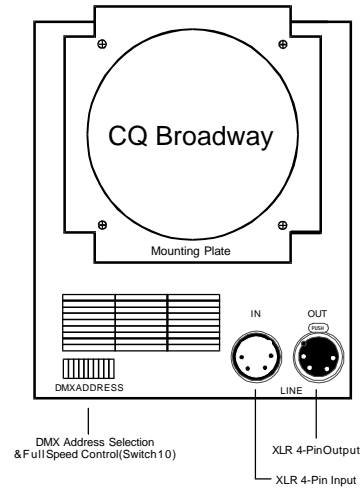
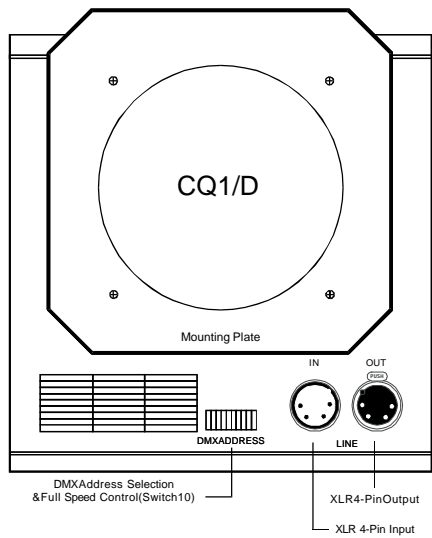


Table of DMX Binary Address Settings 129-256

DMX ADDRESS	BINARY SWITCH SETTING								DMX ADDRESS	BINARY SWITCH SETTING							
	1	2	4	8	16	32	64	128		1	2	4	8	16	32	64	128
129	ON							ON		193	ON					ON	ON
130		ON						ON		194		ON				ON	ON
131	ON	ON						ON		195	ON	ON				ON	ON
132			ON					ON		196			ON			ON	ON
133	ON		ON					ON		197	ON		ON			ON	ON
134		ON	ON					ON		198		ON	ON			ON	ON
135	ON	ON	ON					ON		199	ON	ON	ON			ON	ON
136				ON				ON		200				ON		ON	ON
137	ON			ON				ON		201	ON			ON		ON	ON
138		ON		ON				ON		202		ON		ON		ON	ON
139	ON	ON		ON				ON		203	ON	ON		ON		ON	ON
140			ON	ON				ON		204			ON	ON		ON	ON
141	ON		ON	ON				ON		205	ON		ON	ON		ON	ON
142		ON	ON	ON				ON		206		ON	ON	ON		ON	ON
143	ON	ON	ON	ON				ON		207	ON	ON	ON	ON		ON	ON
144					ON			ON		208				ON		ON	ON
145	ON				ON			ON		209	ON			ON		ON	ON
146		ON			ON			ON		210		ON		ON		ON	ON
147	ON	ON			ON			ON		211	ON	ON		ON		ON	ON
148			ON		ON			ON		212			ON		ON	ON	ON
149	ON		ON		ON			ON		213	ON		ON		ON	ON	ON
150		ON	ON		ON			ON		214		ON	ON		ON	ON	ON
151	ON	ON	ON		ON			ON		215	ON	ON	ON		ON	ON	ON
152				ON	ON			ON		216				ON	ON	ON	ON
153	ON				ON	ON		ON		217	ON			ON	ON	ON	ON
154		ON			ON	ON		ON		218		ON		ON	ON	ON	ON
155	ON	ON			ON	ON		ON		219	ON	ON		ON	ON	ON	ON
156			ON	ON	ON			ON		220			ON	ON	ON	ON	ON
157	ON		ON	ON	ON			ON		221	ON		ON	ON	ON	ON	ON
158		ON	ON	ON	ON			ON		222		ON	ON	ON	ON	ON	ON
159	ON	ON	ON	ON	ON			ON		223	ON	ON	ON	ON	ON	ON	ON
160						ON		ON		224					ON	ON	ON
161	ON					ON		ON		225	ON				ON	ON	ON
162		ON				ON		ON		226		ON			ON	ON	ON
163	ON	ON				ON		ON		227	ON	ON			ON	ON	ON
164			ON			ON		ON		228			ON		ON	ON	ON
165	ON		ON			ON		ON		229	ON		ON		ON	ON	ON
166		ON	ON			ON		ON		230		ON	ON		ON	ON	ON
167	ON	ON	ON			ON		ON		231	ON	ON	ON		ON	ON	ON
168				ON		ON		ON		232				ON		ON	ON
169	ON				ON	ON		ON		233	ON			ON	ON	ON	ON
170		ON			ON	ON		ON		234		ON			ON	ON	ON
171	ON	ON			ON	ON		ON		235	ON	ON		ON	ON	ON	ON
172			ON	ON		ON		ON		236			ON	ON		ON	ON
173	ON		ON	ON		ON		ON		237	ON		ON	ON		ON	ON
174		ON	ON	ON		ON		ON		238		ON	ON	ON		ON	ON
175	ON	ON	ON	ON		ON		ON		239	ON	ON	ON	ON		ON	ON
176					ON	ON		ON		240					ON	ON	ON
177	ON				ON	ON		ON		241	ON				ON	ON	ON
178		ON			ON	ON		ON		242		ON			ON	ON	ON
179	ON	ON			ON	ON		ON		243	ON	ON			ON	ON	ON
180			ON		ON	ON		ON		244			ON		ON	ON	ON
181	ON		ON	ON	ON	ON		ON		245	ON		ON		ON	ON	ON
182		ON	ON		ON	ON		ON		246		ON	ON		ON	ON	ON
183	ON	ON	ON		ON	ON		ON		247	ON	ON	ON		ON	ON	ON
184				ON	ON	ON		ON		248				ON	ON	ON	ON
185	ON			ON	ON	ON		ON		249	ON			ON	ON	ON	ON
186		ON			ON	ON		ON		250		ON		ON	ON	ON	ON
187	ON	ON			ON	ON		ON		251	ON	ON		ON	ON	ON	ON
188			ON	ON	ON	ON		ON		252			ON	ON	ON	ON	ON
189	ON		ON	ON	ON	ON		ON		253	ON		ON	ON	ON	ON	ON
190		ON	ON	ON	ON	ON		ON		254		ON	ON	ON	ON	ON	ON
191	ON	ON	ON	ON	ON	ON		ON		255	ON	ON	ON	ON	ON	ON	ON
192								ON	ON	256							ON

Table of DMX Binary Address Settings 1-128

DMX ADDRESS	BINARY SWITCH SETTING								
	1	2	4	8	16	32	64	128	256
1	ON								
2		ON							
3	ON	ON							
4			ON						
5	ON		ON						
6		ON	ON						
7	ON	ON	ON						
8				ON					
9	ON			ON					
10		ON		ON					
11	ON	ON		ON					
12			ON	ON					
13	ON		ON	ON					
14		ON	ON	ON					
15	ON	ON	ON	ON					
16					ON				
17	ON				ON				
18		ON			ON				
19	ON	ON			ON				
20			ON		ON				
21	ON		ON		ON				
22		ON	ON		ON				
23	ON	ON	ON		ON				
24				ON	ON				
25	ON			ON	ON				
26		ON		ON	ON				
27	ON	ON		ON	ON				
28			ON	ON	ON				
29	ON		ON	ON	ON				
30		ON	ON	ON	ON				
31	ON	ON	ON	ON	ON				
32						ON			
33	ON					ON			
34		ON				ON			
35	ON	ON				ON			
36			ON			ON			
37	ON		ON			ON			
38		ON	ON			ON			
39	ON	ON	ON			ON			
40				ON		ON			
41	ON			ON		ON			
42		ON		ON		ON			
43	ON	ON		ON		ON			
44			ON	ON		ON			
45	ON		ON	ON		ON			
46		ON	ON	ON		ON			
47	ON	ON	ON	ON		ON			
48					ON	ON			
49	ON				ON	ON			
50		ON			ON	ON			
51	ON	ON			ON	ON			
52			ON		ON	ON			
53	ON		ON		ON	ON			
54		ON	ON		ON	ON			
55	ON	ON	ON		ON	ON			
56				ON	ON	ON			
57	ON			ON	ON	ON			
58		ON		ON	ON	ON			
59	ON	ON		ON	ON	ON			
60			ON	ON	ON	ON			
61	ON		ON	ON	ON	ON			
62		ON	ON	ON	ON	ON			
63	ON	ON	ON	ON	ON	ON			
64							ON		

DMX ADDRESS	BINARY SWITCH SETTING								
	1	2	4	8	16	32	64	128	256
65	ON							ON	
66		ON						ON	
67	ON	ON						ON	
68				ON				ON	
69	ON		ON					ON	
70		ON	ON					ON	
71	ON	ON	ON					ON	
72					ON			ON	
73	ON				ON			ON	
74		ON			ON			ON	
75	ON	ON			ON			ON	
76				ON	ON			ON	
77	ON			ON	ON			ON	
78		ON	ON	ON				ON	
79	ON	ON	ON	ON				ON	
80						ON		ON	
81	ON					ON		ON	
82		ON				ON		ON	
83	ON	ON				ON		ON	
84				ON		ON		ON	
85	ON			ON		ON		ON	
86		ON		ON		ON		ON	
87	ON	ON		ON		ON		ON	
88					ON	ON		ON	
89	ON				ON	ON		ON	
90		ON			ON	ON		ON	
91	ON	ON			ON	ON		ON	
92				ON	ON	ON		ON	
93	ON			ON	ON	ON		ON	
94		ON		ON	ON	ON		ON	
95	ON	ON		ON	ON	ON		ON	
96							ON	ON	
97	ON						ON	ON	
98		ON					ON	ON	
99	ON	ON					ON	ON	
100				ON			ON	ON	
101	ON			ON			ON	ON	
102				ON			ON	ON	
103	ON	ON		ON			ON	ON	
104					ON		ON	ON	
105	ON				ON		ON	ON	
106		ON			ON		ON	ON	
107	ON	ON			ON		ON	ON	
108				ON	ON		ON	ON	
109	ON			ON	ON		ON	ON	
110		ON		ON	ON		ON	ON	
111	ON	ON		ON	ON		ON	ON	
112						ON	ON	ON	
113	ON					ON	ON	ON	
114		ON				ON	ON	ON	
115	ON	ON				ON	ON	ON	
116				ON		ON	ON	ON	
117	ON			ON		ON	ON	ON	
118		ON		ON		ON	ON	ON	
119	ON	ON		ON		ON	ON	ON	
120					ON	ON	ON	ON	
121	ON				ON	ON	ON	ON	
122		ON			ON	ON	ON	ON	
123	ON	ON			ON	ON	ON	ON	
124				ON		ON	ON	ON	
125	ON			ON		ON	ON	ON	
126		ON		ON		ON	ON	ON	
127	ON	ON		ON		ON	ON	ON	
128									ON

Operation

A summary of Chroma-Q's operations has been divided into the following sections:

- a) Control and Power Cables - page 5
- b) Setting the DMX Address - page 6
- c) PSU / Splitter box Options - page 7
- d) PSU / Splitter box Capacity - page 7
- e) Mounting Position - page 8
- f) M5 & M8 Version II Fan Speed - page 8
- g) Using Mark I and Mark II Units Together - page 8
- h) Safety Wire - page 8
- i) F.C.C. Regulations (USA) - page 8
- j) Troubleshooting - page 8/9

For gel string dimensions, assembly, loading and calibration - see the separate leaflet enclosed with your Chroma-Q.

a) Control and Power cables

The Chroma-Q utilises an XLR 4-pin cable system. This is used to supply power and data transfer. Pins 1 and 4 supply 24VDC power. Pins 2 and 3 supply USITT 1990 DMX512 control protocol with a ground drain wire to the connector shell.

Only genuine Tourflex Data Safe cable is recommended for use with the Chroma-Q colour changing System (see Product Ordering List on page 15).

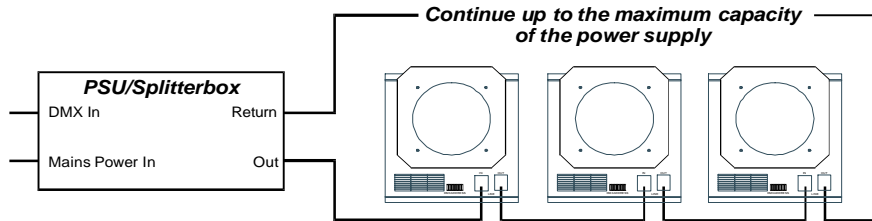
Damage will occur if the power connections short-circuit to the data or ground / shield connections. When assembling XLR 4-pin cables, heat shrink sleeving should be used on each individual data pin and the drain wire to prevent short circuits.

Note: It is very important to ensure that the drain wire from the cable shield is connected to both connector cases.

The cables are wired pin to pin, in the following format:

Pin	Function
1	0V DC
2	Control Data Minus
3	Control Data Plus
4	Plus 24V DC
Chassis	Ground Bonding

System Diagram



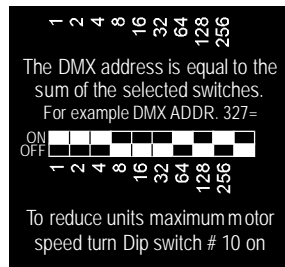
Each PSU / Splitter can accommodate two circuits. The total cable length per circuit must not exceed 61mtrs / 200 ft or a voltage drop will be imposed on the system. The total recommended number of Chroma-Q's of each type must not be exceeded or the system performance will be degraded (see PSU/Splitter Box Options on page 7). The total available current at 24V DC for the connected units is 8.1 Amps peak on the PS08 PSU/ Splitterbox and 16.2Amps peak on the PS18/2.

b) Setting the DMX Address

The DMX address for each unit is set using the 10 way binary switch (three rotary switches on M5 & M8) on the back of the unit (see drawings on page 4) . The address switches are pushed up (rotated) to the on setting. Add the address together to reach the control address required. Example: 1 + 2 = 3, 4 + 64 + 256 = 324.

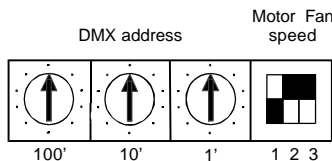
For example on CQ1D, Broadway & M1-M2:

Switch position =



A complete chart of dip switch settings for DMX channels 1 to 511 is shown on pages 16 to 19.

Forexample on M5 & M8:



The Chroma-Q can also be set to a second motor speed. By moving switch 10 on the binary dip switch (DIP 1 on M5 & M8) to the on (up) position, the inherent speed of the Chroma-Q will decrease by approximately 50% (ideal for environments that are particularly noise sensitive).

Product Ordering List

CQ1/D	Chroma-Q Digital Colour Changer
CQB	Boardway Digital Colour Changer
CQM1	M1 Digital Colour Changer
CQM2	M2 Digital Colour Changer
CQM5	M5 Digital Colour Changer Version II
CQM8	M8 Digital Colour Changer Version II
MP1	Mounting Plate for Par 64, aperture 165mm
MP2	Mounting Plate for Source 4 Par
MP3	Mounting Plate for Source 4 / Shakespeare
MP4	Mounting Plate for 6" Leko / 360Q, 190mm x 190mm
MP5	Mounting Plate 185mm x 185mm
MP6	Mounting Plate 254mm x 254mm, aperture 190mm for Analog
MP7	Mounting Plate 254mm x 254mm, aperture 190mm for Digital
MP8	Mounting Plate 305mm x 305mm for Digital
MPM5	Mounting Frame for M5 Version II
MPM8	Mounting Frame for M8 Version II
PS08	8.1 Amp PSU / Splitter box
PS18/2	16.2 Amp PSU / Splitter box
GST16	16 frame "Theatre" Gel String for original Chroma-Q
GST16/D	16 frame "Theatre" Gel String for digital Chroma-Q
GSR16	16 frame "Rock & Roll" Gel String for original Chroma-Q
GSR16/D	16 frame "Rock & Roll" Gel String for digital Chroma-Q
GT1	Gel tabs for Digital Chroma-Q, Broadway, M1, M2
GT2	Gel tabs for Digital M5, M8 Version I
ST	High Temperature Clear Tape
PT	Paper (masking) Tape
BDT	Set/3 Plastic Barndoor Tabs for Chroma-Q, M1
BDTM	Set/3 Metal Barndoor Tabs for M2

Chroma-Q Data Safe Chroma-Q Cables

CQC3	1m / 3ft Chroma-Q Colour Changer Cable, 4 Pin Male - Female
CQC5	1.5m / 5ft Chroma-Q Colour Changer Cable, 4 Pin Male - Female
CQC10	3m / 10ft Chroma-Q Colour Changer Cable, 4 Pin Male - Female
CQC25	7.5m / 25ft Chroma-Q Colour Changer Cable, 4 Pin Male - Female
CQC50	15m / 50ft Chroma-Q Colour Changer Cable, 4 Pin Male - Female
CQC100	30m / 100ft Chroma-Q Colour Changer Cable, 4 Pin Male - Female

DMX Data Safe Control Cables

DS10	3m / 10ft Data Safe 5 pin XLR DMX Cable, Male - Female
Ds25	7.5m / 25ft Data Safe 5 pin XLR DMX Cable, Male - Female
DS50	15m / 50ft Data Safe 5 pin XLR DMX Cable, Male - Female
DS100	30m / 100ft Data Safe 5 pin XLR DMX Cable, Male - Female
TP	5 pin XLR DMX Termination plug (120 ohm)

Note: cables will be in metric lengths for Europe and imperial in the US

Chroma-Q PSU/Splitterbox Specification

	Dimensions			Weight	Power Consumption
	Width	Height	Depth		
PS08	209mm/8¼"	69mm/2¼"	285mm/11¼"	2kg/4.4lb	3.2A max @ 115V 1.6A max @ 230V
PS18/2	300mm/12"	69mm/2¼"	281mm/11"	3.3kg/7.3lb	6.4A max @ 115V 3.2A max @ 230V

Power Requirements:	115 / 230V AC (internally switchable, isolate from mains before removing cover). This power supply must be connected to ground (earth)
Protocol Requirements:	USITT DMX512 (1990)
Body Material:	Powder-coated Aluminium
Mounting Options:	Either freestanding or can be hung from a hook clamp (not supplied)
Colour:	Black
Circuit Out Connector:	XLR 4-pin female (power and control protocol)
Return Connector:	XLR 4-pin male (power and control protocol)
Power Input Connector:	IEC 320 10A, UL rated
Control Out Connector:	XLR 5-pin female (DMX link)
Control Input Connector:	XLR 5-pin male (protected with clamping diodes)
European Approvals:	Complies with EU directives: EMC 89/336/EEC and LVD 73/23/EEC. Harmonized standards applied in order to verify compliance with directives: EN 50081-1 & EN 50082-1: 1992
North American Approvals:	Radiated Emissions: Complies with FCC part 15, subpart B, class A for unintentional radiators

c) PSU / Splitter box Options

The Chroma-Q PSU / Splitter box is available in 2 models: The PS08 is suitable for 8.1 Amps DC maximum and the PS18/2 is suitable for 16.2 Amps DC maximum load.

Each Chroma-Q PSU / Splitter box is equipped with the following:

- 1) Red 24 volt DC power indicator
- 2) Green DMX signal indicator
- 3) DMX 5 pin input and thru sockets
- 4) 2 x XLR 4-pin output sockets
- 5) 2 x XLR 4-pin return sockets
- 6) IEC 320 AC mains input socket

The purpose of the PSU / Splitter box is to combine the DMX control signal and the 24VDC power into individual outputs. There are two output circuits for distribution on each PSU / Splitter box, each is capable of supplying power and data for the Chroma-Q range of colour changers. The maximum cable length, including the return, for the circuit is 61mtrs. / 200ft. on the PS08 and PS18/2.

Each output must be connected back to its own return. The reason for the return socket is to increase the size of the power cable to reduce voltage loss in each circuit and to provide DMX signal termination.

The PS08 PSU / Splitter box has two circuits and produces 24VDC at 8.1 Amps maximum output. The power consumption is approximately 3.2 Amps at 115V AC or 1.6 Amps at 230V AC. The PS18/2 PSU / Splitter box has two circuits and produces 24VDC at 16.2 Amps maximum output. The power consumption is approximately 6.4 Amps at 115V AC or 3.2 Amps at 230V AC. They will supply the total number of Chroma-Q colour changers listed in the table below through one or two circuits.

To change the operating voltage on the PS08 - PS18/2 PSU / Splitter box, first isolate the unit from the mains supply, then remove the main body cover by unscrewing the two Phillips screws on each side of the cover. Locate the red voltage selector on the side of the silver PSU module, two modules in the PS18/2. Slide the selection switches to the desired setting and refit the cover using the four screws.

d) PSU / Splitter box capacities

	PS08	PS18/2
Chroma-Q	8	16
Broadway	12	24
M1	7	14
M2	7	14
M5	6	12
M8	7	14

e) Mounting Position

The Chroma-Q is designed to be mounted in an upright position with the base of the unit below the fixture. Do not mount in an inverted position with the base of the unit above the fixture, as the rising heat from the fixture may cause gel string damage.

A large number of mounting plates are available for the CQ1D, Broadway, M1 & M2. There are mounting frames to fit the M5 & M8 to popular lanterns. Please contact your dealer for a full list.

Always ensure that the Chroma-Q is powered before the fixture and that you reverse the procedure at the end of the show. Failure to do so may cause gel string damage.

f) M5 & M8 Version II Fan Speed

The fan speed of the M5 & M8 version II is adjustable. Dip switch 2 & 3 set the speed, see the drawing on page 4 and settings below.

Dip 2 off, 3 off - high

Dip 2 off, 3 on - medium high

Dip 2 on, 3 off - medium low

Dip 2 on, 3 on - low

g) Using Mark I and Mark II Chroma-Q CQ1's Units Together

Mark I and Mark II units can easily be used on the same show. To do this, calibrate the Mark I units first and last frame to the same frames of the Mark II units.

h) Safety Wires

The safety wire supplied with your Chroma-Q should always be used.

i) F.C.C. Regulations (USA)

This device complies with part 15 of the F.C.C. rules. Operation is subject to the following two conditions:

- (i) This device may not cause harmful interference, and
- (ii) This device must accept any interference that may cause undesired Operation

j) Troubleshooting

Troubleshooting of a Chroma-Q is aided by the indications provided by the 3 diagnostic LED's visibly through the Chroma-Q body. All troubleshooting procedures should begin with a LED check.

The power supplies are designed to shut down if their outputs are shorted. They will not reset until the AC supply has been disconnected and reconnected. The power supply red LED is an indicator of output voltage not input voltage.

Note: A high percentage of problems are caused by corrupt DMX control protocol. We highly recommend the use of genuine Tourflex DataSafe cables for all Chroma-Q colour changer and DMX control protocol cables.

Chroma-Q M5 & M8 Version II Colour Changer Specification

	Dimensions				Aperture
	Width	Height	Depth	Weight	
M5	521mm/20½"	635mm/25"	75mm/3"	5kg/11lb*	406mm x 406mm 16" x 16"
M8	521mm/20½"	826mm/32½"	75mm/3"	5.5kg/12.1lb*	381mm x 610mm 15" x 24"

* without colour frame

Gel Frame Capacity:	between 2 - 16 frames
Speed:	1.5 seconds with dip switch 10 to Off
Speed 2:	3.2 seconds with dip switch 10 to On
Address:	3 rotary switches address up to 512 channels
Fan speed:	4 settings via 2 DIP switches
Power Requirements:	24V DC
Power Consumption:	1.1 Amperes peak at 24V DC with dip switch 10 to On 1.5 Amperes peak at 24V DC with dip switch 10 to Off
Protocol Requirements:	USITT DMX512 (1990)
Body Material:	Powder-coated Aluminium
Mounting Frame:	Mounting frames are available to suit numerous fixtures (see separate price list for current selection)
Colour:	Black
Input Connector:	XLR 4-pin male (power and control protocol)
Output Connector:	XLR 4-pin female (power and control protocol)
European Approvals:	Complies with EU directives: EMC 89/336/EEC Class A. Harmonized standards applied in order to verify compliance with directives: EN 56022:1994, EN 50082-1: 1992 & EN 60950
North American Approvals:	Radiated Emissions: Complies with FCC part 15 subpart B, class A for unintentional radiators. Low Voltage Directive: Complies with CSA 22.2 950, U11950

Chroma-Q M1 & M2 Colour Changer Specification

	Dimensions				
	Width	Height	Depth	Weight	Aperture
M1	305mm/12"	337mm/13¼"	83mm/3¼"	1.9kg/4.18lb*	191mm/7½"
M2	330mm/13"	360mm/14 ¹ / ₈ "	83mm/3¼"	2.3kg/5.06lb*	216mm/8 ¹ / ₈ "

* without colour frame

Gel Frame Capacity:	between 2 - 16 frames
Speed:	1.5 seconds with dip switch 10 to Off
Speed 2:	3.2 seconds with dip switch 10 to On
Address:	10 way binary dip switch address up to 512 channels
Power Requirements:	24V DC
Power Consumption:	1.1 Amperes peak at 24V DC with dip switch 10 to On 1.5 Amperes peak at 24V DC with dip switch 10 to Off
Protocol Requirements:	USITT DMX512 (1990)
Body Material:	Powder-coated Aluminium
Mounting Plate:	Mounting plates are available to suit numerous fixtures (see separate price list for current selection)
Colour:	Black
Input Connector:	XLR 4-pin male (power and control protocol)
Output Connector:	XLR 4-pin female (power and control protocol)
European Approvals:	Complies with EU directives: EMC 89/336/EEC Class A. Harmonized standards applied in order to verify compliance with directives: EN 56022:1994, EN 50082-1: 1992 & EN 60950
North American Approvals:	Radiated Emissions: Complies with FCC part 15 subpart B, class A for unintentional radiators. Low Voltage Directive: Complies with CSA 22.2 950, UL 1950

Symptom	Possible Cause	Solution
All Chroma-Q's show no power indicator (Red LED).	24V DC power supply is not providing power to Chroma-Q.	Check if the mains power to the PSU is ok and the red 24VDC LED is on.
Single Chroma-Q power indicator is off (Red LED).	Electronics fault in Chroma-Q.	Call selling dealer.
Power indicator light is flashing. (Red LED).	Gel string is jammed.	Readjust or replace faulty gel string and / or turn power off and then on again. This will reset the unit.
Chroma-Q has dim power light (Red LED).	Voltage has dropped below acceptable level.	Check that the return line has been installed. Check maximum cable length has not been exceeded.
DMX indicator on all Chroma-Q are off (Green LED).	No DMX is present at the PSU/ Splitter box.	Check that the DMX cable is properly connected to DMX input on the PSU / Splitterbox. Check that DMX indicator light, located on the PSU/Splitterbox, is on.
DMX indicator light on one group of Chroma-Q's are off (Green LED).	One output of the PSU / Splitterbox has failed. Faulty first XLR 4-pin cable at Splitter box output.	Call selling dealer. Test cables.
Level indicator does not respond to DMX control signal (Yellow LED).	Improper address.	Reassign unit addressing.
Level indication changes intensity, but gel string does not move.	Mechanical failure.	Call selling dealer.
No power from PSU, but AC is OK.	Cable short has shut down PSU / Splitter box.	Remove all cables from the Splitter box allow 30 seconds to reset, reconnect AC supply and test. Check cables for shorts

Limited Warranty

Your Chroma-Q colour changers and PSU / Splitterbox are covered by a 12 month warranty against defects in manufacture. The warranty covers parts and labour but excludes the cost of freight. In the case of any warranty claims, please contact your selling dealer. If the selling dealer is unable to assist you, please contact A.C. Lighting directly at the appropriate address as detailed on page 3.

Chroma-Q Colour Changer Specification (CQ1/D)

Dimensions:	285mm (w) x 295mm (h) x 89mm (d) 11 ¼" (w) x 11 5/8" (h) x 3 ½"(d)
Aperture:	171mm / 6 ¾" diameter
Weight:	2.04kg / 4.5lb (without mounting frame)
Gel Frame Capacity:	between 2 - 16 frames
Speed:	1.5 seconds with dip switch 10 to Off
Speed 2:	3.2 seconds with dip switch 10 to On
Address:	10 way binary dip switch address up to 512 channels
Power Requirements:	24V DC
Power Consumption:	0.6 Amperes peak at 24V DC with dip switch 10 to On 0.9 Amperes peak at 24V DC with dip switch 10 to Off
Protocol Requirements:	USITT DMX512 (1990)
Body Material:	UL94 V0 rated reinforced PBT compound
Mounting Plate:	Mounting plates are available to suit numerous fixtures (see list on page 15 for current selection)
Colour:	Black
Input Connector:	XLR 4-pin male (power and control protocol)
Output Connector:	XLR 4-pin female (power and control protocol)
European Approvals:	Complies with EU directives: EMC 89/336/EEC Class A. Harmonized standards applied in order to verify compliance with directives: EN 56022:1994, EN 50082-1: 1992 & EN 60950
North American Approvals:	Radiated Emissions: Complies with FCC part 15 subpart B, class A for unintentional radiators. Low Voltage Directive: Complies with CSA 22.2 950, UL 1950

Chroma-Q Broadway Colour Changer Specification

Dimensions:	205mm (w) x 240mm (h) x 75mm (d) 8 1/8" (w) x 9 ½" (h) x 3 "(d)
Aperture:	127mm / 5" diameter
Weight:	1.05kg / 2.3lb (without mounting frame)
Gel Frame Capacity:	between 2 - 16 frames
Speed:	2 seconds with dip switch 10 to Off
Speed 2:	5 seconds with dip switch 10 to On
Address:	10 way binary dip switch address up to 512 channels
Power Requirements:	24V DC
Power Consumption:	0.45 Amperes peak at 24V DC with dip switch 10 to On 0.90 Amperes peak at 24V DC with dip switch 10 to Off
Protocol Requirements:	USITT DMX512 (1990)
Body Material:	UL94 V0 rated reinforced PBT compound
Mounting Plate:	Mounting plates are available to suit numerous fixtures (see separate price list for current selection)
Colour:	Black
Input Connector:	XLR 4-pin male (power and control protocol)
Output Connector:	XLR 4-pin female (power and control protocol)
European Approvals:	Complies with EU directives: EMC 89/336/EEC Class A. Harmonized standards applied in order to verify compliance with directives: EN 56022:1994, EN 50082-1: 1992 & EN 60950
North American Approvals:	Radiated Emissions: Complies with FCC part 15 subpart B, class A for unintentional radiators. Low Voltage Directive: Complies with CSA 22.2 950, UL 1950