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Cyclo DMX HO High Output

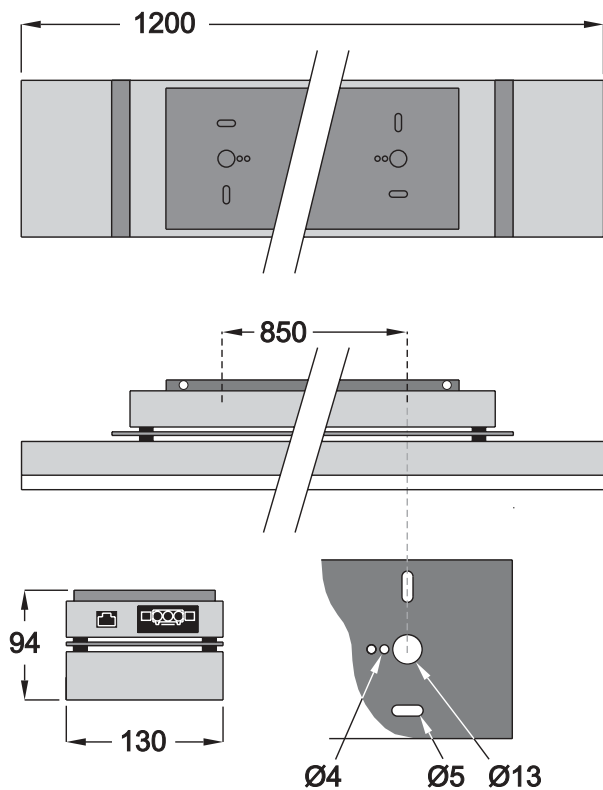


user manual

Martin

Dimensions

Measurements are in millimeters



Cyclo 03 DMX HO and Cyclo 04 DMX HO

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Introduction

Thank you for selecting the Martin Cyclo DMX HO. This dynamic color-changing luminaire can be programmed with a stand-alone light show (which it can run alone or in a synchronized group), and is also DMX-controllable. The luminaire is designed to be used for cove and perimeter lighting, light walls, behind semi-transparent materials, or in any place where space is restricted.

The Martin Cyclo DMX HO features:

- Full 0-100% intensity control of all tubes, allowing RGB color mixing and color temperature correction.
- High output 54 W T5 fluorescent tubes.
- Long tube life of 20,000 hours.
- Through-wired power and control data cables for easy installation.

This manual covers two models rated 230V, 50/60Hz:

- The Cyclo 03 DMX HO, with red, green and blue tubes.
- The Cyclo 04 DMX HO, with red, green, blue and white tubes.

Important! ***Read this manual before you attempt to install this product.***

Updated user manuals for this and all other Martin products are available from the Support area of the Martin Architectural website at <http://www.martin-architectural.com>.

Safety information

Warning! ***This product is for professional use only. It is not for household use.***

This product present risks of lethal or severe injury due to fire and heat, electric shock and falls. **Read this manual** before powering or installing this luminaire, follow the safety precautions listed below and observe all warnings in this manual and on the luminaire. If you have any questions about how to operate this luminaire safely, please contact your Martin dealer or call the Martin 24-hour service hotline at +45 70 200 201.

Protection from electric shock

- Disconnect the luminaire from AC power before removing or installing a tube, fuse, or any component and when not in use.
- Always ground (earth) the luminaire electrically.
- Do not operate the luminaire if any cover or component is damaged, deformed or defective.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground fault (earth fault) protection.
- Do not expose the luminaire to rain or moisture.
- Refer all service not described in this manual to a Martin service technician.

Protection from burns and fire

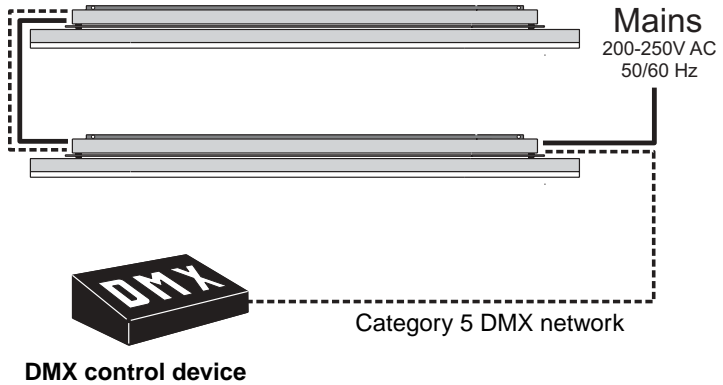
- Provide a minimum clearance of 0.1 meters (4 inches) around the luminaire.
- Never place filters or other materials over the clear polycarbonate cover.
- The exterior of the luminaire can become hot to the touch. Allow the luminaire to cool for at least 5 minutes before handling.
- Do not modify the luminaire or install other than genuine Martin parts.
- Do not operate the luminaire if the ambient temperature (T_a) exceeds 40° C (104° F).

Protection from injury due to falls

- Ensure that all external covers, fasteners and components are secure.
- Ensure that all supporting structures, surfaces and fasteners can bear the weight of all devices installed.
- Block access below the work area whenever installing, servicing or removing the luminaire.

Installation

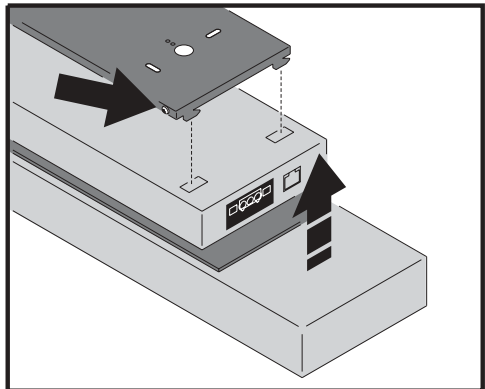
This section describes in general terms how to install the luminaire and connect it to power and control. These procedures must be performed by qualified professionals.



To ensure adequate ventilation, install the Cyclo DMX HO with a minimum of 25 mm (1 inch) of free space on each side.

To mount the luminaire:.

1. Loosen the two screws (see solid arrow in illustration) holding the mounting plate to the luminaire
2. Remove the mounting plate from the luminaire.
3. Fasten the mounting plate to the mounting surface using four 4 mm (1/6th in) diameter mounting screws or bolts that can bear the weight of the luminaire.
4. Reattach the luminaire to the mounting plate and lock it into place by tightening the two screws on the sides of the mounting plate.



AC power

It is the installer's responsibility to ensure that all local safety regulations and legal requirements are observed when installing and powering the Cyclo DMX HO.

AC mains power compatibility and consumption data are given in "Cyclo DMX HO Specifications" on page 26.

Many fixed installations use common neutral conductors in branch circuit distribution boxes. To avoid unintentional tripping of the RCD (ground fault circuit breaker), ensure that the Cyclo DMX HO's neutral conductor is connected to AC power via the same RCD as the live conductor.

Important! ***Cyclo DMX HO luminaires contain electronic ballasts that "leak" a total current of between 0.8mA and 4mA to ground (earth). Make sure that luminaires are correctly connected to ground (earthed) so that this "leakage" current can be absorbed.***

Because of the "leakage" current, we recommend connecting a maximum of seven Cyclo DMX HO luminaires per circuit where each circuit is protected by a 30mA RCD. This should avoid unintentional tripping of RCDs. Bear in mind that some RCDs rated at 30mA may trip when leakage to ground is as low as 20mA.

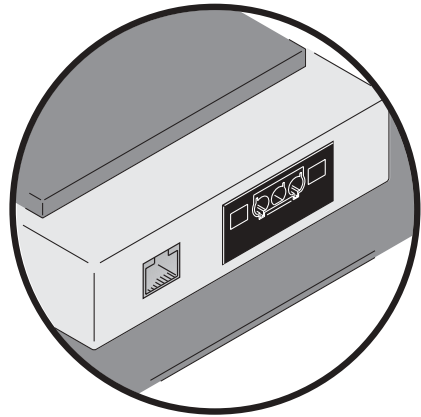
Depending on the type of installation, electrical regulations in some countries may permit the use of RCDs with a trip current rating higher than 30mA. When considering this option, the installer must ensure that all local safety, building and electrical regulations are respected.

Connecting to power

Warning! ***Check that your local AC power voltage matches the voltage specified on the serial number label before applying power.***

Calculate the total current draw of all devices to be connected and use a power cable with a suitable rating.

Cyclo DMX HO luminaires have an ENSTO male connector for AC power input built into the casing (see illustration). A female ENSTO cable connector is supplied with the luminaire for installation on your power cable.



Power Input (male ENSTO connector)

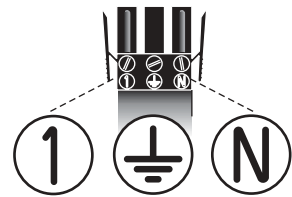
You can power Cyclo DMX HO luminaires by wiring them in series. The internal wiring carries AC power through the luminaire from the power input to the power output connector.

Some common color-coding systems for AC power wiring are given below:

Wire (EU)	Wire (US)	Pin	Marking
brown	black	live	“L” or “1”
blue	white	neutral	“N”
yellow/green	green	ground	\perp

When installing the female ENSTO cable connector on the power cable, note the markings next to the screw terminals:

- The terminal marked **1** must be connected to the live wire.
- The terminal marked \perp must be connected to the ground (earth) wire.
- The terminal marked **N** must be connected to the neutral wire.



Female ENSTO cable connector

The following connectors and cables are available from your Martin dealer:

ENSTO 3-pole 16A/250V male connector	P/N 05347202
ENSTO 3-pole 16A/250V female connector	P/N 05327202
ENSTO male/female cable (15 cm/5.9in.)	P/N 11501019

Data linking multiple luminaires

You need to create a serial data link to:

- Operate two or more Cyclo DMX HO's in master/slave stand-alone mode, where all luminaires run a synchronized light show without a separate DMX control device
- Control luminaires with a DMX control device.

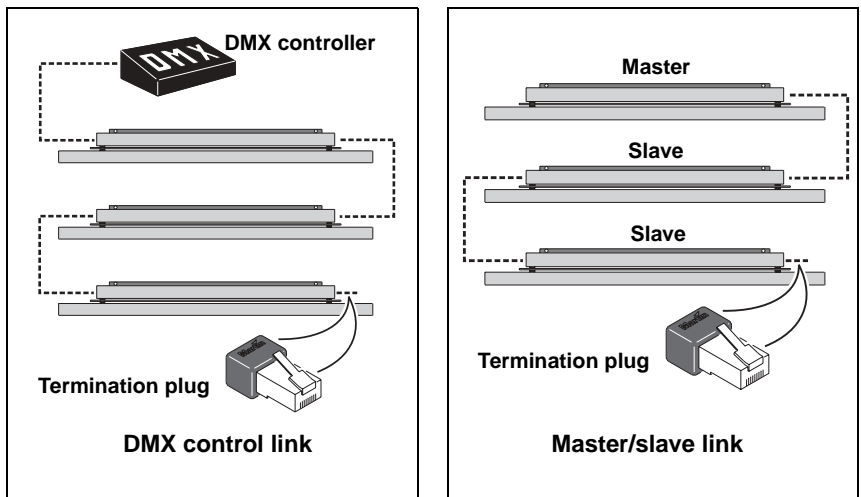
Luminaires on a serial data link must be daisy-chained in one single line, maximum 500 meters (1640 ft.) long, with maximum 32 luminaires. To exceed 32 luminaires or 500 meters, or to add branches, use an optically isolated amplifier-splitter such as the Martin RS-485 Opto-Splitter (P/N 90758060).

A reliable data connection requires suitable cable. CAT 5 (category 5) UTP (unshielded twisted pair) network cable is suitable for this purpose. Recommended minimum wire sizes are 0.25 mm² (24 AWG) for runs up to 300 meters (1000 ft.) and 0.34 mm² (22 AWG) for longer cable runs. Your Martin Architectural dealer can advise and supply suitable cable.

The: RJ-45 sockets in the Cyclo DMX HO are wired as follows: pins 7 & 8 to ground, pin 2 to signal - (cold), and pin 1 to signal + (hot).

Data connections are through-wired in the luminaire, so it is not important which RJ-45 socket is used for input and which for output.

To connect the data link:



1. Use suitable cable to connect one of the RJ-45 sockets on the first Cyclo DMX HO to an RJ-45 socket on the next luminaire.
2. Continue connecting up to 32 luminaires using the RJ-45 sockets.

3. Terminate the link by inserting a an RJ-45 DMX termination plug (P/N 91613028) in the RJ-45 data output of the last luminaire.

Tip!

Random “flicker” and other unexplained control problems during stand-alone master/slave operation can often be cured by inserting an RJ-45 DMX termination plug into the unused socket of the first luminaire.

Connecting a DMX control device

If using a DMX control device, use suitable cable to connect the controller’s DMX output to an RJ-45 socket on the first Cyclo DMX HO. If your control device has an XLR data output socket, you will need a male XLR-to-RJ45 converter, available from your Martin Architectural dealer (P/N 11840087).

For details of data link wiring and polarity, see “*Data linking multiple luminaires*” on page 9.

Burning in new tubes

For optimum tube life and performance, burn in new fluorescent tubes by running them for 100 hours at full power.

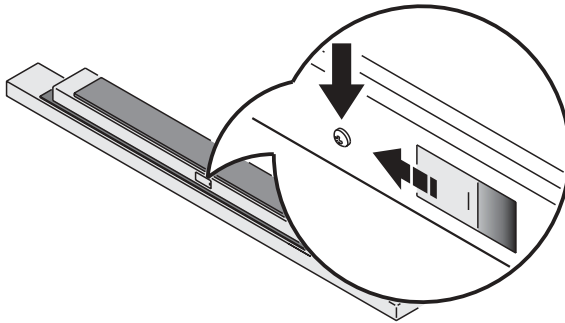
Stand-alone operation

In stand-alone operation, the Cyclo DMX HO can be used without a DMX controller. Static single colors or two-color mixes can be displayed, or luminaires can be programmed to change colors in cycles. Changes can be programmed at 1, 5, 10 or 30 second intervals.

Two stand-alone operation modes are available:

- In **single stand-alone operation**, luminaires run independently of each other. No data link is required.
- In **master/slave stand-alone operation**, luminaires must be linked. Synchronized action in all luminaires is triggered by one “master” luminaire.

Programming single and master/slave stand-alone operation involves setting the pins on the luminaire’s DIP switch. The DIP switch is protected behind a sliding cover on the side of the power/control module housing. To access the switch, loosen the cover screw but do not remove it completely, then slide open the cover (see illustration).



An overview of the DIP switch settings is provided on the next page. A quick reference table covering DIP switch functions is also provided on the back cover of this manual.

DIP-switch settings in stand-alone mode

Cyclo DMX HO 03

Pin	Function															
1	Red active															
2	Green active															
3	Blue active															
4	Not used															
5 & 6	Program speed															
	<table border="1"><thead><tr><th>Pin 6</th><th>Pin 5</th><th>Speed</th></tr></thead><tbody><tr><td>OFF</td><td>OFF</td><td>1 sec. steps (fastest setting)</td></tr><tr><td>OFF</td><td>ON</td><td>5 sec. steps</td></tr><tr><td>ON</td><td>OFF</td><td>10 sec. steps</td></tr><tr><td>ON</td><td>ON</td><td>30 sec. steps (slowest setting)</td></tr></tbody></table>	Pin 6	Pin 5	Speed	OFF	OFF	1 sec. steps (fastest setting)	OFF	ON	5 sec. steps	ON	OFF	10 sec. steps	ON	ON	30 sec. steps (slowest setting)
Pin 6	Pin 5	Speed														
OFF	OFF	1 sec. steps (fastest setting)														
OFF	ON	5 sec. steps														
ON	OFF	10 sec. steps														
ON	ON	30 sec. steps (slowest setting)														
7	OFF = Blackout fading, ON = Crossfading															
8	OFF = Run program, ON = Pause program															
9	OFF = Master, ON = Slave (Note: do not set more than one luminaire as master)															
10	ON = Stand-alone mode.															

Cyclo DMX HO 04

Pin	Function															
1	White active															
2	Red active															
3	Green active															
4	Blue active															
5 & 6	Program speed															
	<table border="1"><thead><tr><th>Pin 6</th><th>Pin 5</th><th>Speed</th></tr></thead><tbody><tr><td>OFF</td><td>OFF</td><td>1 sec. steps (fastest setting)</td></tr><tr><td>OFF</td><td>ON</td><td>5 sec. steps</td></tr><tr><td>ON</td><td>OFF</td><td>10 sec. steps</td></tr><tr><td>ON</td><td>ON</td><td>30 sec. steps (slowest setting)</td></tr></tbody></table>	Pin 6	Pin 5	Speed	OFF	OFF	1 sec. steps (fastest setting)	OFF	ON	5 sec. steps	ON	OFF	10 sec. steps	ON	ON	30 sec. steps (slowest setting)
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10	ON = Stand-alone mode.															

Stand-alone operation settings

Activating colors

DIP switch pins 1 to 3 (1 to 4 in Cyclo DMX HO 04 models) each activate a color in the stand-alone program.

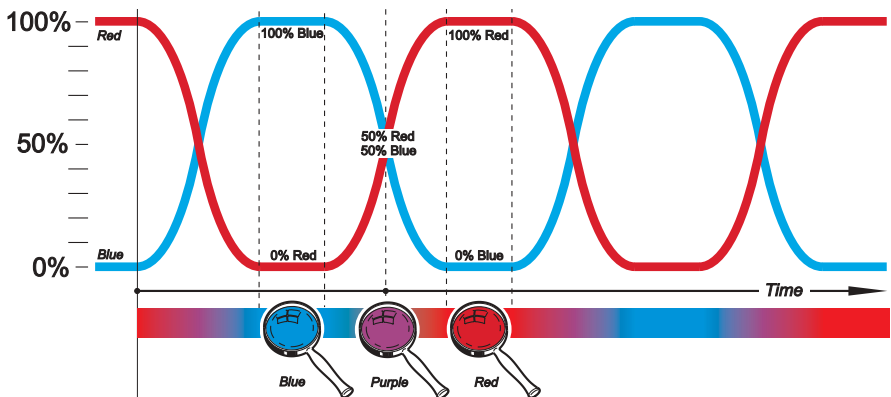
Setting program speed

Combinations of DIP switch pins 5 and 6 allow one of four different speeds to be set.

Fading between colors

If DIP switch 7 is set to OFF (blackout fading), colors fade to almost blackout before the next color fades in.

If DIP switch 7 is set to ON (crossfading), color fading overlaps. If two or more colors are active, one color fades in while another is fading out, giving a color mixing effect. For example, if red and blue are activated and crossfading is selected, colors will crossfade from red through purple to blue, then back through purple to red in a continuous cycle (see example).



Example: crossfading between red and blue

Setting a static color display

In stand-alone operation, a static (non-changing) color display can be set by pausing the program at the point where it is showing the desired color. Either one color or a mix of two colors can be “frozen” in this way.

To set a static color display:

1. Activate the color you wish to display (if you wish to display a two-color mix, activate these two colors) on DIP switch pins 1 to 3 (1 to 4 on 04 models).
2. Set the luminaire as master by setting DIP switch pin 9 to OFF.
3. Set DIP switch pins 5 and 6 to ON to activate the slowest program speed.
4. Set DIP switch pin 7 to OFF to activate crossfading and DIP switch pin 8 to OFF to activate the program.
5. When the desired color or color mix appears, pause the program by moving DIP switch 8 to ON. This color will remain “frozen” until DIP switch 8 is moved to OFF.

Note that the paused color is lost when the luminaire is powered off. When powering the luminaire on again, DIP switch pin 8 must be moved to OFF before the program will start.

Single stand-alone operation

In single stand-alone operation, a luminaire runs its own program independently of all other luminaires. To do this, the luminaire must be set as a master.

Activating single stand-alone operation

To activate single stand-alone operation:

1. Set DIP switch pin 10 to ON (activates stand-alone mode).
2. Set DIP switch pin 9 to OFF (activates master mode).
3. Apply power and program the luminaire using DIP switch pins 1 - 8 (see “DIP-switch settings in stand-alone mode” on page 12).

Master/slave stand-alone operation

Important! ***Do not set more than one luminaire on a data link as master, and do not set a luminaire as master on a data link with a DMX controller. Doing so may cause damage to the electronics that is not covered by the product warranty.***

In master/slave stand-alone operation, one master luminaire transmits a synchronizing signal to slave luminaires over the data link each time it starts a new action. Slave luminaires start their next programmed action when they receive this signal from the master luminaire. Programs can be

identical on all luminaires, or luminaires can – subject to certain practical constraints – run programs that are synchronized but not identical.

Note that:

- Colors are always displayed in the order: red, green, then blue (white, red, green, then blue on 04 models). This means for example that if red is activated, it will always be first in the program. If red is not activated but green is activated, green will be first in the program.
- Each luminaire follows the program set on its own DIP switch as described in “*DIP-switch settings in stand-alone mode*” on page 12.

More sophisticated light shows can be programmed using a DMX controller (see “*DMX controlled operation*” on page 18).

The synchronization signal used by Cyclo DMX HO luminaires is identical to that used in other Cyclo luminaires with the same number of tubes, allowing these products to be combined in master/slave operation on one data link. Luminaires that do not have the same number of tubes cannot be linked in master/slave operation. Consult your Martin Architectural dealer if you need advice on combining and controlling products.

Identical light shows

Master and slave luminaires can be set to behave identically. In this mode, the master sends synchronizing signals to the slaves, and all luminaires run the same light show. Each slave luminaire follows the program set on its own DIP switch, so for identical operation, all luminaires’ DIP switch settings must be the same apart from pin 9, which is set to ON for slaves and OFF for the master.

Synchronized non-identical light shows

It is also possible to synchronize changes but program slave luminaires to behave differently from the master. To use this feature effectively, you need to plan your light show using *scenes* as building blocks and set the luminaires’ DIP switches accordingly.

A scene is a change from one output to another. When a luminaire is in slave mode, it starts a scene when it receives a synchronization signal from the master. The time taken by the scene is determined by the speed setting of the slave luminaire’s DIP switch. A slave will not respond to new synchronization signals until its scene is complete.

When crossfading is selected, each color takes up one scene (fade in only). When blackout fading is selected, each color takes up two scenes (fade in and fade out). This means that a maximum of 8 scenes can be programmed with all 4 tubes activated (6 scenes with all 3 tubes activated on 03 models) and blackout fading selected.

Each time the master luminaire starts at scene 1, it sends a signal to all the slave luminaires to start at scene 1. This means that if a slave luminaire has:

1. Fewer scenes than the master luminaire, it will run these in a cycle until the master luminaire signals that the program should start from the beginning again.
2. More scenes than the master, the additional scenes will never run, because the program will reset to the first scene when the master starts its program from the beginning.

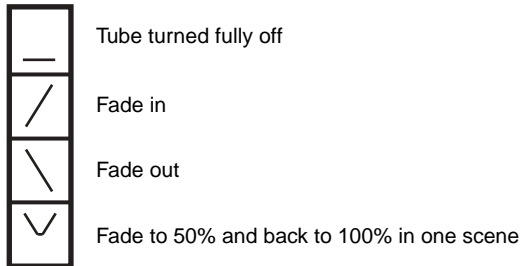
Here is an example of what will happen if a slave luminaire has fewer scenes than the master luminaire:

Luminaire setting	Scene pattern
Master with 6 scenes	1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 ...
Slave with 4 scenes	1 2 3 4 1 2 1 2 3 4 1 2 1 2 3 4 1 2 ...

Program examples

The following examples show how an individual luminaire's program is made up of scenes.

The symbols on the right are used in program diagrams.



Example 1

DIP switch 7 is set to ON (crossfading) and only red is activated:

Red	∨	∨	∨	∨	∨	∨	∨	∨	∨	∨	∨	∨	∨	∨
Scene	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Example 2

DIP switch 7 is set to OFF (blackout fading) and only red is activated:

Red	/	\	/	\	/	\	/	\	/	\	/	\	/	\
Scene	1	2	1	2	1	2	1	2	1	2	1	2	1	2

Example 3

DIP switch 7 is set to ON (crossfading) and red and blue are activated:

Red	/	\	/	\	/	\	/	\	/	\	/	\
Blue	\	/	\	/	\	/	\	/	\	/	\	/
Scene	1	2	1	2	1	2	1	2	1	2	1	2

Example 4

DIP switch 7 is set to OFF (blackout fading) and red and blue are activated:

Red	/	\	-	-	/	\	-	-	/	\	-	-
Blue	-	-	/	\	-	-	/	\	-	-	/	\
Scene	1	2	3	4	1	2	3	4	1	2	3	4

Example 5

To achieve a rainbow effect, activate red, green and blue and set DIP switch pin 7 to ON (crossfading).

Red	/	\	-	/	\	-	/	\	-	/	\	-
Green	-	/	\	-	/	\	-	/	\	-	/	\
Blue	\	-	/	\	-	/	\	-	/	\	-	/
Scene	1	2	3	1	2	3	1	2	3	1	2	3

Activating master/slave stand-alone operation

To activate master/slave stand-alone operation:

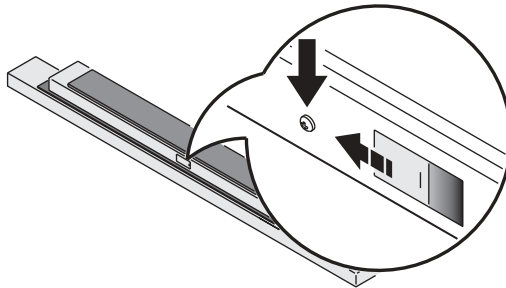
1. Power all luminaires off.
2. Set all luminaires as slaves and put them into stand-alone mode by setting DIP switch pins 9 and 10 to ON.
3. Decide which luminaire to use as master and set this luminaire's DIP switch pin 9 to OFF. Note that any luminaire can be set as master, but you will obtain the most reliable data signal by either setting the first luminaire on the link as master or using RJ-45 DMX termination plugs at *both* ends of the data link.
4. When power is applied, slave luminaires will go to the next scene in their program each time the master goes to its next scene. Slave luminaires will also start scene 1 of their programs each time the master starts scene 1 of its program.

DMX controlled operation

The Cyclo DMX HO may be operated with any USITT DMX (1990) lighting control device. This section describes how to operate the system with a controller. See also “*Troubleshooting*” on page 24.

Setting the luminaire to DMX operation

DMX operation is enabled by setting pin 10 on the luminaire’s DIP switch to OFF. The DIP switch can be accessed by loosening the DIP-switch cover screw (do not remove it completely) and sliding open the cover (see illustration.)



Setting a DMX control address

The Cyclo DMX HO 03 uses 3 DMX control channels, and the Cyclo DMX HO 04 uses 4 DMX control channels.

The DMX address, also known as the start channel, is the first of these channels. It must be set on the luminaire and selected on the DMX controller before the controller can send commands to the luminaire via a DMX link.

The Cyclo DMX HO responds to commands sent to the DMX address and the channels immediately above it. This means that if the DMX address is set to 101:

- The Cyclo DMX HO 03 uses channels 101, 102 and 103.
- The Cyclo DMX HO 04 uses channels 101, 102, 103 and 104.

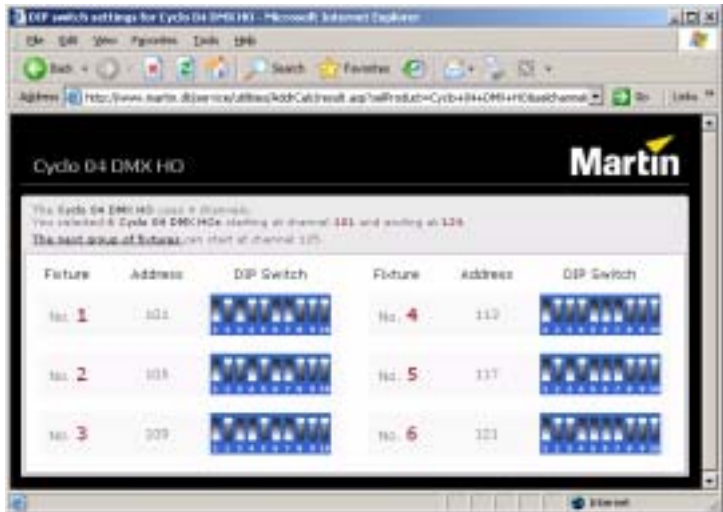
Allow enough channels when setting the DMX address. If control channels for two luminaires overlap, one of the luminaires will receive the wrong commands.

If two or more Cyclo DMX HOs share the same DMX address, they will receive the same commands and respond identically. Individual control will be impossible.

The default factory-set control address is '1'.

To set the Cyclo DMX HO's DMX address:

1. Set DIP switch pin 10 to OFF to enable DMX operation.
2. Decide on a DMX address for the luminaire. If you are calculating the DMX addresses for multiple luminaires, save time by using the online Martin Address Calculator at <http://www.martin.dk/service/utilities/AddrCalc/index.asp> (see example).



3. You can also look up DIP-switch settings using the Martin DIP Switch Calculator, available for online use and download at <http://www.martin.dk/service/dipswitchpopup.htm>



4. If you do not have Internet access, refer to "Table 1: DMX address DIP-switch settings" on page 20. Set DIP switch pins 1 through 9 to ON (1) or OFF (0) with reference to the table.

To use this table, first find the DMX address in the main block in the table. Then read the settings for pins 1 - 5 to the left and read the settings for pins 6 - 9 above the address. "0" means OFF and "1" means ON.

For example, to set the DMX address to 101, you need to set DIP-switch pins 1, 3, 6 and 7 to ON, as highlighted in the table.

DIP switch pins setting						#9	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
0 = OFF						#8	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
1 = ON						#7	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
						#6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
#1	#2	#3	#4	#5																		
0	0	0	0	0	0	32	64	96	128	160	192	224	256	288	320	352	384	416	448	480		
1	0	0	0	0	1	33	65	97	129	161	193	225	257	289	321	353	385	417	449	481		
0	1	0	0	0	2	34	66	98	130	162	194	226	258	290	322	354	386	418	450	482		
1	1	0	0	0	3	35	67	99	131	163	195	227	259	291	323	355	387	419	451	483		
0	0	1	0	0	4	36	68	100	132	164	196	228	260	292	324	356	388	420	452	484		
1	0	1	0	0	5	37	69	101	133	165	197	229	261	293	325	357	389	421	453	485		
0	1	1	0	0	6	38	70	102	134	166	198	230	262	294	326	358	390	422	454	486		
1	1	1	0	0	7	39	71	103	135	167	199	231	263	295	327	359	391	423	455	487		
0	0	0	1	0	8	40	72	104	136	168	200	232	264	296	328	360	392	424	456	488		
1	0	0	1	0	9	41	73	105	137	169	201	233	265	297	329	361	393	425	457	489		
0	1	0	1	0	10	42	74	106	138	170	202	234	266	298	330	362	394	426	458	490		
1	1	0	1	0	11	43	75	107	139	171	203	235	267	299	331	363	395	427	459	491		
0	0	1	1	0	12	44	76	108	140	172	204	236	268	300	332	364	396	428	460	492		
1	0	1	1	0	13	45	77	109	141	173	205	237	269	301	333	365	397	429	461	493		
0	1	1	1	0	14	46	78	110	142	174	206	238	270	302	334	366	398	430	462	494		
1	1	1	1	0	15	47	79	111	143	175	207	239	271	303	335	367	399	431	463	495		
0	0	0	0	1	16	48	80	112	144	176	208	240	272	304	336	368	400	432	464	496		
1	0	0	0	1	17	49	81	113	145	177	209	241	273	305	337	369	401	433	465	497		
0	1	0	0	1	18	50	82	114	146	178	210	242	274	306	338	370	402	434	466	498		
1	1	0	0	1	19	51	83	115	147	179	211	243	275	307	339	371	403	435	467	499		
0	0	1	0	1	20	52	84	116	148	180	212	244	276	308	340	372	404	436	468	500		
1	0	1	0	1	21	53	85	117	149	181	213	245	277	309	341	373	405	437	469	501		
0	1	1	0	1	22	54	86	118	150	182	214	246	278	310	342	374	406	438	470	502		
1	1	1	0	1	23	55	87	119	151	183	215	247	279	311	343	375	407	439	471	503		
0	0	0	1	1	24	56	88	120	152	184	216	248	280	312	344	376	408	440	472	504		
1	0	0	1	1	25	57	89	121	153	185	217	249	281	313	345	377	409	441	473	505		
0	1	0	1	1	26	58	90	122	154	186	218	250	282	314	346	378	410	442	474	506		
1	1	0	1	1	27	59	91	123	155	187	219	251	283	315	347	379	411	443	475	507		
0	0	1	1	1	28	60	92	124	156	188	220	252	284	316	348	380	412	444	476	508		
1	0	1	1	1	29	61	93	125	157	189	221	253	285	317	349	381	413	445	477	509		
0	1	1	1	1	30	62	94	126	158	190	222	254	286	318	350	382	414	446	478	510		
1	1	1	1	1	31	63	95	127	159	191	223	255	287	319	351	383	415	447	479	511		

Table 1: DMX address DIP-switch settings

Controlling via DMX

The Cyclo DMX HO's advanced fluorescent tubes can be dimmed from maximum output right down to zero on a DMX controller using one channel per tube. This allows a wide range of color shades with almost infinitely variable intensity to be obtained using additive color mixing. The color temperature of white light can be fine-tuned by running the white tube at high power and adding blue or red at low power. Replacement white tubes with various color temperatures are also available (see "Accessories" on page 27).

Depending on the functions available on the controller, sophisticated light shows on the Cyclo DMX HO can be programmed over time, allowing constantly and rapidly shifting color mixes, or color displays which change slowly according to the time of day, or even year, for example. See your DMX controller manual for details.

Your Martin Architectural dealer can advise about available controllers and control options.

Service

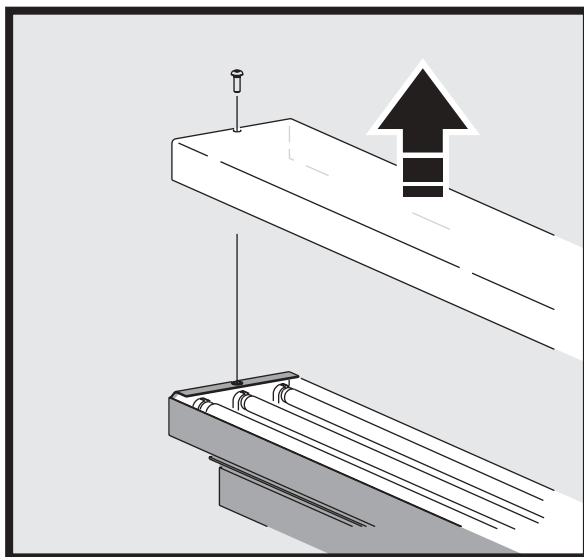
With long-life fluorescent tubes and virtually no moving parts, the Cyclo DMX HO is almost service-free.

Fluorescent tube replacement

The Osram high output T5 tubes fitted as standard meet color specifications for at least 10 000 hours. Average tube life is 20 000 hours, but note that tube life will vary depending on operating conditions.

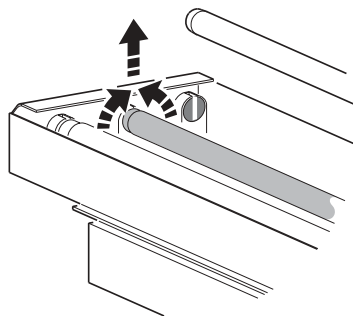
To change a tube:

1. Isolate the luminaire from the power supply and ensure that power cannot be reapplied, even accidentally.
2. Ensure that the luminaire is securely mounted and block access below the work area before beginning any servicing work.
3. Remove the two retaining screws and remove the front cover.



Front cover removal (03 model illustrated)

4. Pressing on the metal caps at both ends of the tube, rotate the tube 1/4 turn in whichever direction is easiest, and slide the tube's terminal pins out of their sockets. Support the tube at both ends as it is released.
5. To install a new tube, line it up so that the manufacturer's markings on all tubes are at the same end of the luminaire. Slide the tube's terminal pins fully into their sockets and rotate the tube 1/4 turn to engage the pins.
6. Reinstall the front cover before reapplying power.



**Tube removal
(03 model illustrated)**

Identifying tube positions

Tube positions are identified in the Cyclo DMX HO as follows:

Marking in luminaire	Marking on tube	Color	Reference illustration
R	OSRAM 54/60	Red	
G	OSRAM 54/66	Green	
B	OSRAM 54/67	Blue	
No marking (Cyclo DMX HO 04 only)	OSRAM 54/827 OSRAM 54/840 OSRAM 54/860	2700K white 4000K white 6000K white	

The burning positions of fluorescent tubes affect their warm-up times, operating temperature, light output and tube life. For best results:

- Install tubes so that the manufacturer's markings are all at the same end of the luminaire.
- If the luminaire is installed in a vertical position or at an angle from the horizontal, locate the ends of the tubes that carry the manufacturer's markings at the lower end of the luminaire (in a cold environment, i.e. where temperatures are generally around or below freezing point, locate the markings at the *upper* end of the luminaire).

Cleaning

Switch off power to the luminaire and use a damp cloth to wipe clean.

Troubleshooting

Problem	Probable cause(s)	Remedy
No response from luminaire when power is applied.	No power to luminaire.	Check power connections.
	Ground fault protection circuit breaker (RCD) has tripped.	Reset RCD. If problem persists, have an electrician replace the RCD or reduce the number of luminaires powered via one RCD.
Luminaire does not respond correctly to DMX control.	Controller not connected.	Check DMX data link. Inspect connections and test cables. Repair or replace as necessary.
	Incorrect DMX addressing.	Check address setting on luminaire and controller.
	Data link not terminated.	Insert DMX termination plug in unused socket of last luminaire on data link.
	Luminaire on link set as master.	Check that all luminaires are set as slaves (DIP switch pin 9 ON).
	Defective luminaire.	Bypass luminaires one at a time until normal operation is regained.
Luminaires do not behave correctly in master/slave mode	Two luminaires operating as masters.	Check that only one luminaire is set as master.
	Data link not terminated.	Insert DMX termination plug in unused socket of last luminaire on data link. If problem persists, insert DMX termination plug in unused socket of first luminaire on data link.
	Defective luminaire.	Bypass luminaires one at a time until normal operation is regained.
Poor quality light output and/or color rendering.	Tube or tubes not burnt in.	Run luminaire for at least 100 hours to burn in tubes.
	Tube defective.	Disconnect luminaire and replace tube.

DMX protocols

Cyclo 03 DMX HO protocol

Start code = 0

Channel	Value	Percent	Function
1	0-2 3-252 253-255	0 1 - 99 100	Red intensity Tube off Intensity 1→100% Intensity 100%
2	0-2 3-252 253-255	0 1 - 99 100	Green intensity Tube off Intensity 1→100% Intensity 100%
3	0-2 3-252 253-255	0 1 - 99 100	Blue intensity Tube off Intensity 1→100% Intensity 100%

Cyclo 04 DMX HO protocol

Start code = 0

Channel	Value	Percent	Function
1 (not used for Cyclo 03 DMX)	0-2 3-252 253-255	0 1 - 99 100	White intensity Tube off Intensity 1→100% Intensity 100%
2	0-2 3-252 253-255	0 1 - 99 100	Red intensity Tube off Intensity 1→100% Intensity 100%
3	0-2 3-252 253-255	0 1 - 99 100	Green intensity Tube off Intensity 1→100% Intensity 100%
4	0-2 3-252 253-255	0 1 - 99 100	Blue intensity Tube off Intensity 1→100% Intensity 100%

Cyclo DMX HO Specifications

PHYSICAL

L x W x H 1200 x 130x 94 mm (47.2 x 5.1 x 3.7 in.)
Finish electrostatic powder coated, gray

Cyclo 03 DMX HO

Weight. 8.8 kg (19.4 lbs)

Cyclo 04 DMX HO

Weight. 10.5 kg (23.1 lbs)

SOURCE

Approved lamp type OSRAM T5 HO 54 W fluorescent tubes
Expected lamp life. 20 000 hours

DYNAMIC EFFECTS

Dimmable tubes red, green & blue (03 models)
red, green, blue & white (04 models)
Independent dimming of each tube via DMX control device

CONTROL AND PROGRAMMING

Control options DMX 512, stand alone, master/slave
Receiver RS-485, 1 unit load
Setting and addressing DIP switch
Data input RJ-45
Data output RJ-45
DMX channels (Cyclo 03 HO DMX) 3
DMX channels (Cyclo 04 HO DMX) 4

INSTALLATION

Orientation any
Minimum free space around luminaire when installed 25 mm (1 inch)

POWER

AC power 198 - 250 V, 50 / 60 Hz
AC input EnstoNet Installation System connectors

Typical power and current

Cyclo 03 DMX HO @ 230 V / 50 Hz 0.80 A, 181 W
Cyclo 04 DMX HO @ 230 V / 50 Hz 1.02 A, 234 W

Note: Allow for a deviation of +/- 10% from typical figures listed above.
Measurements made at nominal voltage. Local supply voltages can vary by +/- 10%.

THERMAL

Maximum ambient temperature (T_a)	40° C (104° F)
Minimum ambient temperature (T_a), started at full power	-20° C (-4° F)
Cooling	convection

LISTINGS & APPROVALS



CE approved

INCLUDED ITEMS

Tube (installed, all models)	OSRAM T5 FQ 54W/60 (red)
Tube (installed, all models)	OSRAM T5 FQ 54W/66 (green)
Tube (installed, all models)	OSRAM T5 FQ 54W/67 (blue)
Tube (installed, 04 model only)	OSRAM T5 FQ 54W/840 (cool white)
User manual	

ACCESSORIES

Diffuser front for Cyclo 04	P/N 91611078
Diffuser front for Cyclo 03	P/N 91611077
Warm white tube (2700 K, Osram T5 FQ 54W/827)	P/N 97020009
Daylight white tube (6000 K, Osram T5 FQ 54W/860)	P/N 97020011
ENSTO 3-pole 16A/250V male connector	P/N 05347202
ENSTO 3-pole 16A/250V female connector	P/N 05327202
ENSTO Male/female power cable (15 cm/5.9in.)	P/N 11501019
RJ-45 data link termination plug	P/N 91613028
3-pin XLR female to RJ-45 converter	P/N 11840086
3-pin XLR male to RJ-45 converter	P/N 11840087
CAT5 patch cable, RJ-45, 250 mm (9.8 in.)	P/N 11840088
CAT5 patch cables, RJ-45, 2 m (6.5 ft) x 50 pcs	P/N 91611044
CAT5 patch cables, RJ-45, 5 m (16.4 ft) x 30 pcs	P/N 91611045
CAT5 patch cables, RJ-45, 10 m (32.8 ft) x 15 pcs	P/N 91611046

ORDERING INFORMATION

Cyclo 03 DMX HO, EU model	P/N 90550114
Cyclo 04 DMX HO, EU model	P/N 90550003

