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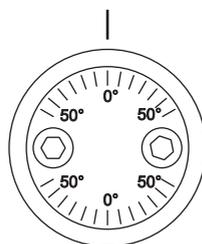
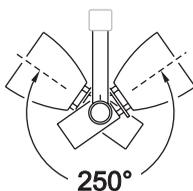
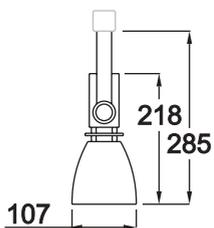
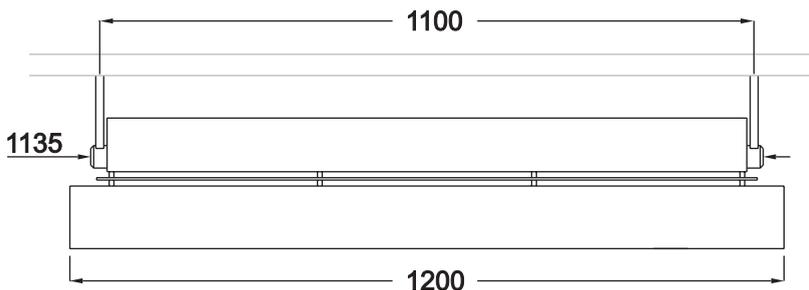
Cyclo 03 Directional



user manual

Dimensions

Measurements are in millimeters



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Martin

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Introduction

Thank you for selecting the Martin Cyclo 03 Directional. The Cyclo 03 Directional is a dynamic fluorescent color changing luminaire that can be programmed for stand-alone operation or controlled via DMX.

The Cyclo 03 Directional is designed for dynamic color illumination of walls and surfaces. A patented optical system ensures effective color mixing within the main reflector, allowing the luminaire to be positioned close to the illuminated surface without color hot-spots. Dimmable T5 fluorescent tubes combine high efficiency, bright color and long lamp life.

The Cyclo 03 Directional can be surface-mounted or mounted on standard 3-phase lighting track. It can be tilted through 250°, allowing flexibility of installation.

Control cables are through-wired for easy installation.

The Cyclo 03 Directional features:

- Controllable RGB color-mixing
- Full 0-100% intensity control of the red, green and blue tubes
- High output, long life T5 fluorescent tubes
- Flexible mounting options
- 250° of tilt

Important! ***Read this manual before attempting to install this product.***

The most recent version of this user manual is 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.***

These products present risks of lethal or severe injury due to fire and heat, electric shock and falls. Read this manual before powering or installing these luminaires, follow the safety precautions listed below and observe all warnings in this manual and on the luminaires. If you have questions about

how to operate these luminaires 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 or any part, and when not in use.
- Always ground (earth) the luminaire electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground (earth) fault protection.
- Ensure that the luminaire's live and neutral conductors are both connected to the same RCD (ground fault circuit-breaker)
- Do not expose the luminaires to rain or moisture.
- Refer all service to a Martin service technician.

Protection from burns and fire

- Provide a minimum clearance of 0.1 meters (4 inches) around the luminaire.
- 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 components and installation fittings are securely fastened.
- Ensure that all supporting structures, surfaces and fasteners can bear the weight of all luminaires 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, connect it to AC power and connect control data cables. These procedures must be performed by qualified professionals.

Mounting

The Cyclo 03 Directional features two mounting options:

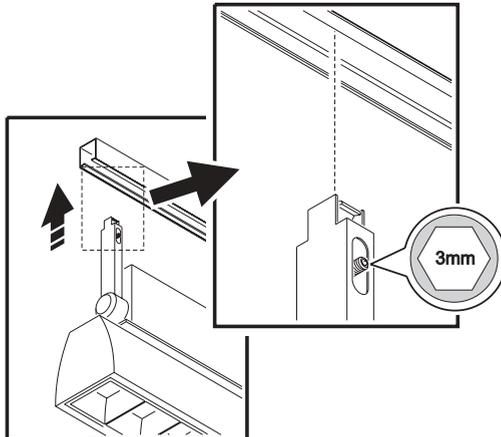
- track-mounting on standard 3-phase lighting track
- surface-mounting using mounting brackets that are available as accessories.

Warning! *Check that all fasteners, structures and surfaces used to mount the Cyclo 03 Directional can bear the total weight of all devices installed.*

Work from a stable platform and block access below the work area when installing or servicing luminaires above head-height.

Lighting track mounting

The Cyclo 03 Directional can be mounted on lighting track from all major manufacturers (Nokia, Erco, Zumtobel, iGuzzini, Nordic Aluminium, etc.)

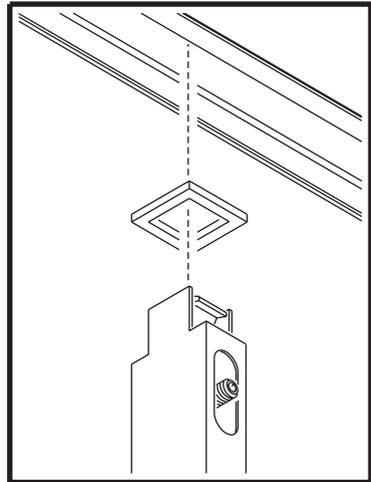


A 3mm Allen key is required for this operation.

To mount a Cyclo 03 Directional on lighting track:

1. Isolate the lighting track from the power supply and ensure that power cannot be reapplied, even accidentally.
2. Hold the luminaire up to the lighting track and slide the ends of the mounting arms into the slot in the track.
3. Supporting the luminaire in position, fully tighten the 3mm Allen screws in the side of each mounting arm.
4. Check that the luminaire is held firmly in place before reapplying power.

Lighting track dimensions can vary slightly between manufacturers. If the Cyclo 03 Directional is not held firmly in place, you may need to repeat the above procedure, adding the square spacers supplied with the luminaire to take up any clearance between the mounting arms and the lighting track.

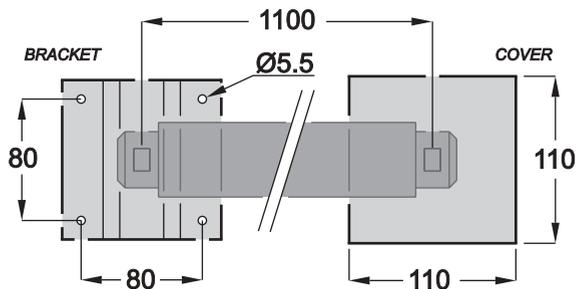
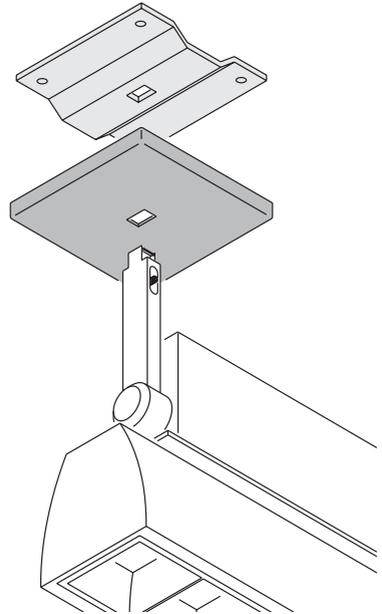


Surface mounting

The Cyclo 03 Directional can be surface-mounted on a floor, wall or ceiling using a bracket kit that is available as an accessory.

To surface-mount the Cyclo 03 Directional:

1. Ensure that the surface on which you want to mount the Cyclo 03 Directional can support the weight of all the luminaires installed on it.
2. Mark up two points 1100mm (43.3 in.) apart as center points for the mounting brackets. Allow enough space around the center points for the 110mm (4.3 in.) square cover plates



3. Hold each mounting bracket against the mounting surface so that the raised ridge in the bracket runs at 90° to the long side of the Cyclo 03 Directional (see illustrations), and so that the center point you have marked is visible in the middle of the rectangular hole in the center of the bracket.
4. Mark the mounting surface using the holes at the corners of each bracket as guides, and drill holes in the mounting surface for the fasteners.
5. Fasten the mounting brackets to the surface using eight high-tensile (grade 8.8 or over) M5 fasteners (screws, masonry bolts, etc.). Note that the ridge in the bracket must be at 90° to the long side of the luminaire.

6. Clip the bracket covers over the brackets with the long side of the rectangular hole at 90° to the Cyclo 03 Directional.
7. Hold the luminaire up to the mounting brackets. Slide the ends of the mounting arms through the rectangular holes in the bracket covers and into the mounting brackets.
8. Carefully supporting the luminaire, fully tighten the 3mm Allen screws in the side of each mounting arm.
9. Check that the luminaire is totally secure.

AC power

It is the installer's responsibility to ensure that all local safety regulations and legal requirements are observed when installing and connecting the Cyclo 03 Directional.

AC mains power compatibility and consumption data are given in the Specifications section on page 31.

Warning! *Many installations use common neutral conductors in branch circuit distribution boxes. The neutral lead in the cable must be connected to the same RCD (ground fault circuit breaker) as the live lead in the cable. If it is not, users are left unprotected from the risk of potentially lethal electric shock. It is the installer's responsibility to ensure that the Cyclo 03 Directional's neutral conductor is connected to the same RCD as the live conductor.*

Important! *Cyclo 03 Directional luminaires incorporate four electronic ballasts that "leak" a total current of between 0.8mA and 4mA to ground (earth). Luminaires must be correctly connected to ground so that this "leakage" current can be absorbed.*

It is also important that installation is carried out correctly in order to avoid unintentional tripping of the RCD (ground fault circuit breaker). Because of the "leakage" current, we recommend connecting a maximum of seven Cyclo 03 Directional luminaires per phase when circuits are protected by a 30mA RCD. Bear in mind that some RCDs rated at 30mA may trip when current leakage to ground is as low as 20mA.

Connecting to mains power

Cyclo 03 Directional luminaires have an ENSTO male connector built into the casing for mains power input. A female ENSTO connector is supplied with the luminaire for installation on the power supply cable.

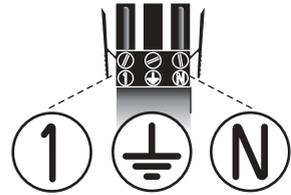
To draw power from lighting track, a suitable power take-off plug from the lighting track supplier must be installed on the power supply cable in accordance with the lighting track supplier's instructions.

Some common color-coding systems for mains wiring is given below:

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

When installing the female ENSTO 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 centre terminal marked  must be connected to the ground (earth) wire.
- The terminal marked **N** must be connected to the neutral wire.



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:

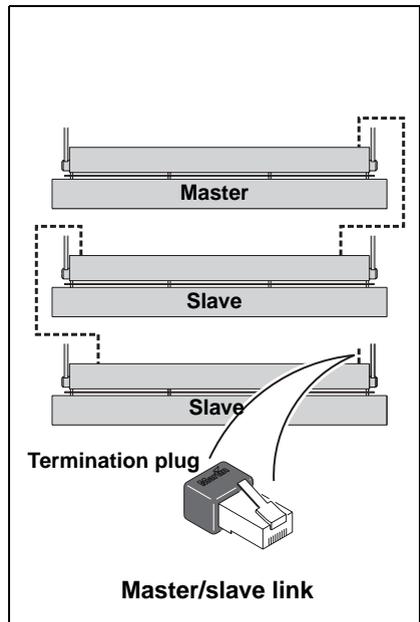
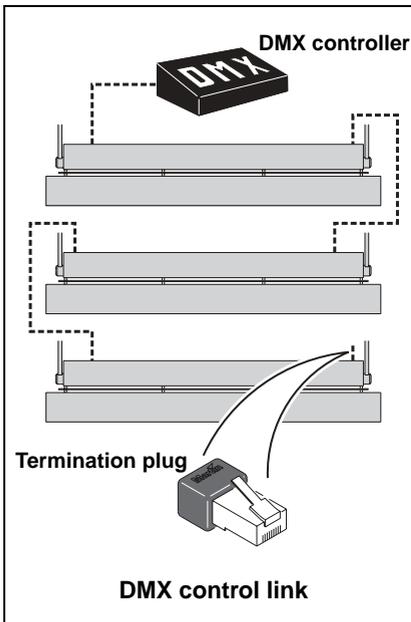
- Operate two or more Cyclo 03 Directionals in master/slave stand-alone mode, where all luminaires run a synchronized light show without a separate DMX control device
- Control luminaires with a DMX control device.

A reliable data connection requires suitable cable. CAT 5 (category 5) UTP (unshielded twisted pair) network cable is suitable for this purpose. Your Martin Architectural dealer can advise and supply suitable cable.

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, an optically isolated amplifier-splitter such as the Martin RS-485 Opto-Splitter (P/N 90758060) must be used.

Data cable can be connected to the Cyclo 03 Directional via RJ-45 sockets that are wired as follows:

- pins 7 & 8 to ground (earth)
- pin 2 to signal - (cold)
- pin 1 to signal + (hot).



To create the data link:

1. Use suitable cable to connect one of the RJ-45 sockets on the first Cyclo 03 Directional 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.
4. If using a DMX control device, use suitable cable to connect the device's DMX output to one of the RJ-45 sockets on the first Cyclo 03 Directional.

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.

Burning in fluorescent tubes

Optimum tube performance is obtained after burning in new fluorescent tubes for 100 hours at full power.

Stand-alone operation

In stand-alone operation, the Cyclo 03 Directional 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.

In both single and master/slave stand-alone operation, luminaires are programmed via the pins on the DIP switch on the luminaire’s housing as shown in Table 1.

Pin	Function		
1	Red active		
2	Green active		
3	Blue active		
4	Not used		
5 & 6	Program speed		
	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.		

Table 1. Stand-alone DIP switch settings

A quick reference table covering DIP switch functions is also provided on the back cover of this manual.

Stand-alone operation settings

Activating colors

DIP switch pins 1 to 3 each activate a color in the stand-alone program.

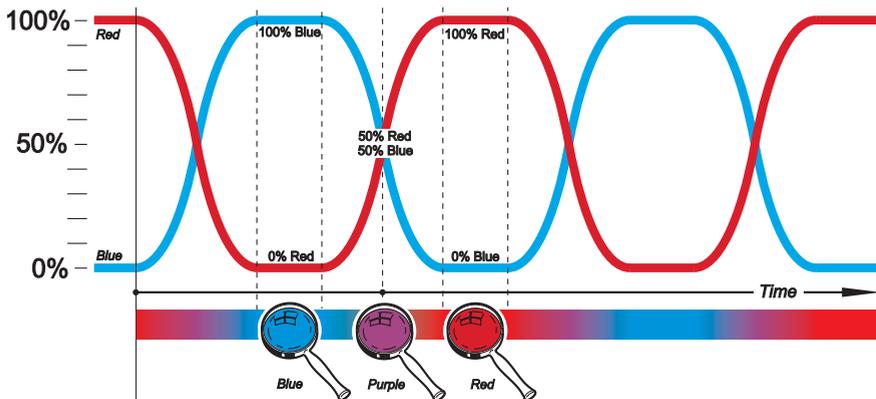
Setting program speed

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.
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 "*Table 1. Stand-alone DIP switch settings*" on page 14).

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, then green, then blue. This means 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 "*Table 1. Stand-alone DIP switch settings*" on page 14.

More sophisticated light shows can be programmed using a DMX controller (see "*DMX controlled operation*" on page 21).

The synchronization signal used by the Cyclo 03 Directional is identical to that used in other 3-tube Cyclo luminaires, allowing these products to be combined in master/slave operation on one data link. However, it is not compatible with 4-tube Cyclos. 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 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 6 scenes can be programmed with all 3 colors activated 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 when 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 ...

Program examples

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

The following symbols are used in program diagrams:

—	Tube turned fully off
/	Fade in
\	Fade out
∨	Fade to 50% and back to 100% in one scene (applies when only one color is active and crossfading is selected)

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

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

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 03 Directional may be programmed and operated with any lighting control device that is compatible with the USITT DMX standard.

See also “*DMX protocol*” on page 30.

Connecting a DMX control device

Connect a data cable to the DMX control device’s data output and one of the Cyclo 03 Directional’s RJ-45 DMX sockets. If your control device has an XLR data output socket, you may need to buy or wire an XLR-to-RJ45 converter. For details of wiring and polarity, see “*Data linking multiple luminaires*” on page 12.

Setting a luminaire to DMX operation

DMX operation is enabled by setting pin 10 on the DIP switch to OFF. Pins 1 - 9 are then used to set the luminaire’s control address.

Setting a DMX control address

The Cyclo 03 Directional uses 3 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 03 Directional responds to commands sent to the DMX address and the next two channels. If the DMX address is set to 100, the Cyclo 03 Directional uses channels 100, 101 and 102.

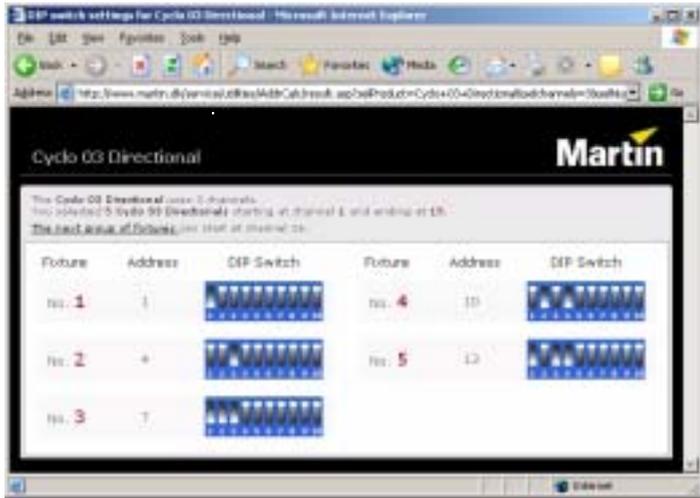
Allow enough channels when setting the DMX address. If control channels for one luminaire overlap control channels for another luminaire, one of the luminaires will receive the wrong commands.

If two or more Cyclo 03 Directionals 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 03 Directional's DMX address:

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



3. You can also look up DIP-switch settings using the Martin DIP Switch Calculator, available for use and downloadable at <http://www.martin.dk/service/dipswitchpopup.htm>. If you do not have Internet access, refer to "Table 2: DIP switch address settings" on page 23.



4. Set DIP switch pins 1 through 9 to ON (1) or OFF (0) with reference to the table.

Find the address in the table. 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. Pin 10 is always OFF for DMX operation.

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

DIP switch Setting					#9	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
#1	#2	#3	#4	#5	#6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
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 2: DIP switch address settings

Controlling via DMX

The Cyclo 03 Directional's advanced fluorescent tubes can be dimmed from maximum output right down to zero using three channels on a DMX controller. 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 also be fine-tuned.

Depending on the functions available on the controller, sophisticated light shows on the Cyclo 03 Directional 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 the controller's manual for details.

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

Service

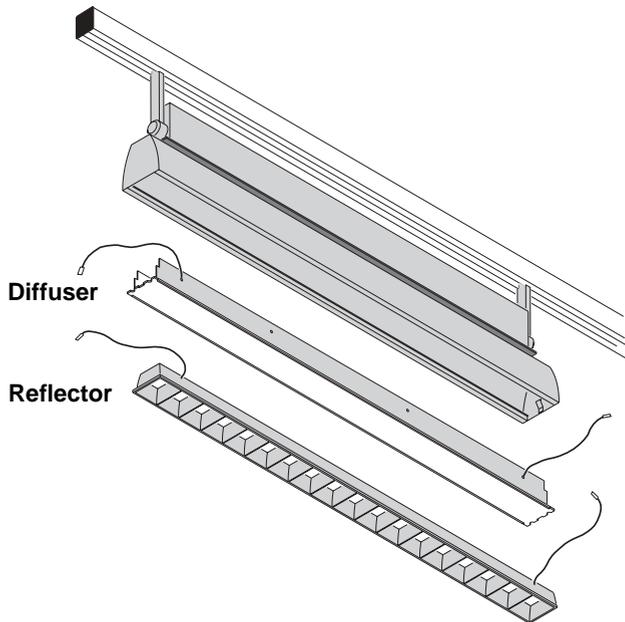
With long-life fluorescent tubes and no moving parts, the Cyclo 03 Directional is almost service-free.

Fluorescent tube replacement

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

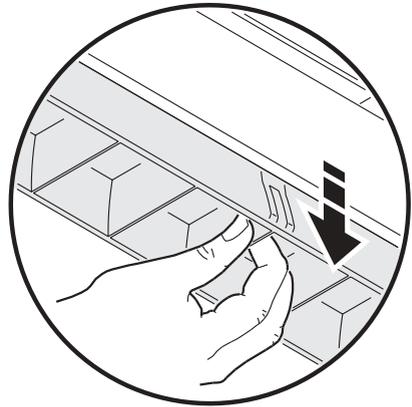
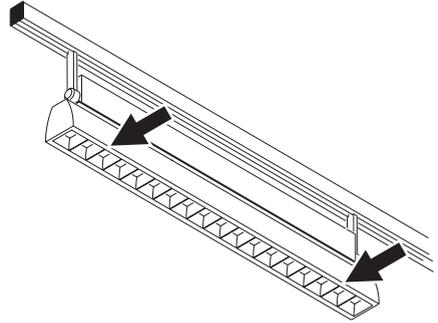
No tools are required to replace a fluorescent tube on the Cyclo 03 Directional.

The reflector and diffuser must be removed for access to the tubes. These two components are attached to the luminaire housing by safety wires and can be left hanging from these wires during tube replacement.

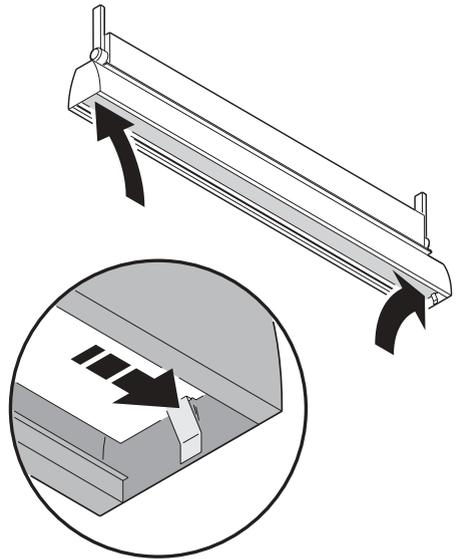


To change a tube:

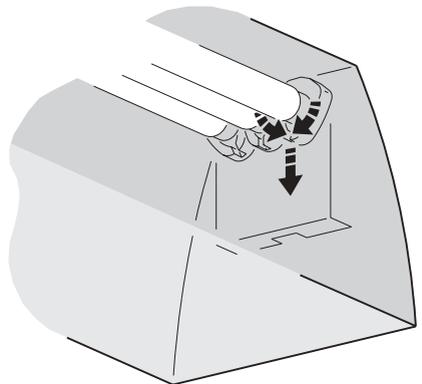
1. Isolate the luminaire from the power supply and ensure that power cannot be reapplied, even accidentally.
2. Ensure that the luminaire is securely mounted before beginning any servicing work.
3. The reflector is held in place by metal spring clips. Hold the second fin from each end firmly and pull downwards to release the reflector. If the reflector is difficult to move by pulling, insert a small screwdriver between the reflector and the housing, next to the second fin from the end, to help release the clip.



4. The diffuser is held in place by metal clips at each end of the luminaire. Push a clip back and remove the diffuser. You now have access to the tubes.



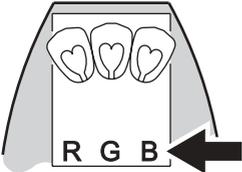
5. Pressing on the metal caps at both ends of the tube, rotate the tube 1/4 turn in whichever direction is easiest, and slide the tube's terminal pins out of their sockets. Support the tube at both ends as it is released.



6. 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. Check that the tube is held securely in the sockets.
7. Replace the diffuser and then the reflector by pushing them onto their clips before reapplying power.

Tube positions

Tube positions in the Cyclo 03 Directional are identified as follows:

Marking in luminaire	Marking on tube	Reference illustration
R	OSRAM FQ 54W/60 RED	
G	OSRAM FQ 54W/66 GREEN	
B	OSRAM FQ 54W/67 BLUE	

The burning positions of fluorescent tubes affect their 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 mounted in a vertical position or at an angle from the horizontal, place the ends of the tubes that carry the manufacturer's markings at the lower end of the luminaire.

Cleaning

Turn off power to the luminaire before cleaning, and use a damp cloth to wipe clean.

Troubleshooting

Problem	Probable cause(s)	Remedy
No response from fixture when power is applied.	In stand-alone mode, DIP switch pin 8 set to ON (pause).	Set DIP switch pin 8 to OFF to resume stand-alone program.
	No power to luminaire.	Check power connections.
	No power to lighting track.	Check power connection to lighting track.
	Ground fault protection circuit breaker (RCD) has tripped.	Reset RCD. If problem persists, have an electrician replace the RCD or reduce the number of fixtures powered via one RCD.
Fixture 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 fixture and controller.
	Data link not terminated.	Insert RJ-45 termination plug in unused socket of last fixture on data link.
	Two devices transmitting on link.	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.
Fixtures do not behave correctly in master/slave mode	Two luminaires transmitting on link.	Check that only one luminaire is set to operate as master.
	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 protocol

Start code = 0

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

Cyclo 03 Directional Specifications

PHYSICAL

L x W x H (with mounting arms)	1200 x 107 x 285 mm (47.3 x 4.2 x 11.2 in.)
L x W x H (without mounting arms)	1200 x 107 x 218 mm (47.3 x 4.2 x 8.6 in.)
Weight	8.7 kg (19.3 lbs)
Luminaire colors	Titanium, white

SOURCE

Light source	T5 fluorescent tubes (3x54W)
Approved lamp type	OSRAM T5 high output 54W
Color authenticity	Guaranteed to 10 000 hours
Average tube life	20 000 hours

DYNAMIC EFFECTS

0-100% dimmable tubes	Red, green and blue
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CONTROL AND PROGRAMMING

Control options	DMX512, stand-alone, master/slave
Receiver	RS-485
Setting and addressing	DIP switch
Data input/ output	RJ-45 (through-wired)
Number of DMX channels	3

INSTALLATION

3-phase lighting track mounting with universal track adaptor	
Surface mounting with optional mounting brackets	
Orientation	Any
Minimum free space around luminaire	25 mm (1 inch)

THERMAL

Maximum ambient temperature (T_a)	40° C (104° F)
Maximum total heat dissipation	618 BTU/hr.
Cooling	Convection

POWER

AC power	198 V - 254 V, 50 / 60 Hz
Maximum power and current @ 208 V / 50 Hz	0.87 A / 180 W
Maximum power and current @ 230 V / 50 Hz	0.80 A / 181 W
Maximum power and current @ 250 V / 50 Hz	0.73 A / 179 W
AC input	EnstoNet Installation System

CONSTRUCTION

Housing	Mild steel
Optics	High specular 99.9% aluminum

INCLUDED ITEMS

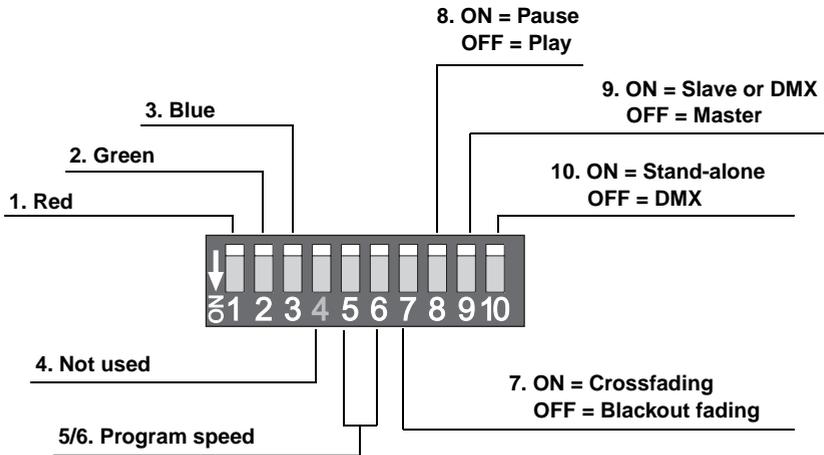
Red T5 high output fluorescent tube	OSRAM FQ 54W/60
Green T5 high output fluorescent tube	OSRAM FQ 54W/66
Blue T5 high output fluorescent tube	OSRAM FQ 54W/67
ENSTO 3 pole 16A/250V male connector	P/N 05347202
ENSTO 3 pole 16A/250V female connector	P/N 05327202
User manual	P/N 35000163

ACCESSORIES

Wall/ceiling bracket (set of 2), titanium	P/N 91611187
Wall/ceiling bracket (set of 2), white	P/N 91611186
Termination plug RJ-45	P/N 91613028
RJ-45 connector (15 cm/ 5.9 in.)	P/N 11840088
ENSTO male/female cable (15 cm/5.9in.)	P/N 11501019
XLR male to RJ-45 converter	P/N 11840087
XLR female to RJ-45 connector	P/N 11840086
50 x CAT5 network cables - 2 m (6.5 ft)	P/N 91611044
30 x CAT5 network cables - 5 m (16.4 ft)	P/N 91611045
15 x CAT5 network cables - 10 m (32.8 ft)	P/N 91611046

ORDERING INFORMATION

Cyclo 03 Directional, titanium	P/N 90550055
Cyclo 03 Directional, white	P/N 90550050



**Quick reference
Cyclo 03 Directional DIP switch settings**

