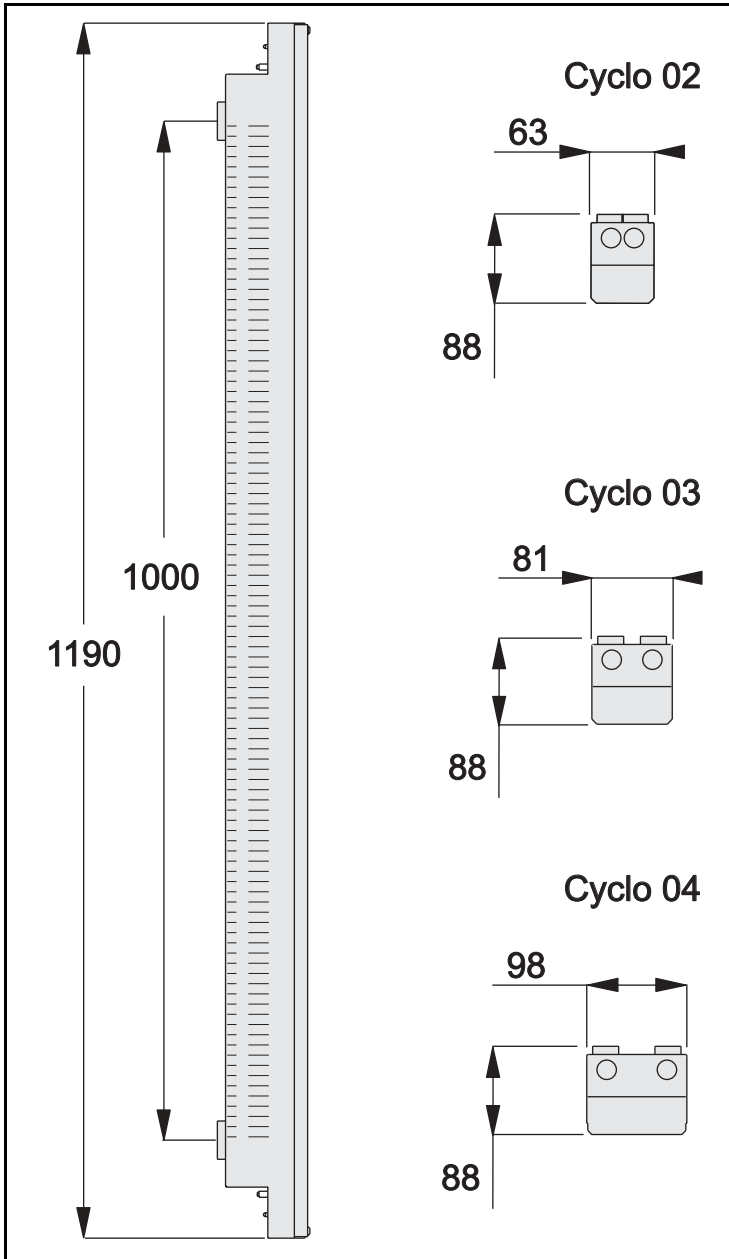




Cyclo

user manual

Measurements are in millimeters



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INTRODUCTION

Thank you for selecting the Martin Cyclo. The Cyclo Series is a range of controllable, fluorescent color changers. These fixtures are designed to be used for cove lighting, perimeter lighting, light walls, behind semi-transparent materials, or any place where room is restricted.

Cyclo is a family of fixtures based on dimmable fluorescent T5 tubes. The T5 tubes have achieved widespread popularity due to their sleek design and high efficacy combined with their long lamp life.

In order to be DMX controlled, the Cyclo fixtures require the Martin 516 DMX to 0-10 V Converter. The 516 Converter converts DMX to 0-10 V analog output. Additional Cyclos can be daisy-chained for synchronous dimming. A single 516 Controller can control 4-8 Cyclo groups individually, each group consisting of one to ten of the same Cyclo model wired in series (the number of groups depends on the model of Cyclo that is installed). The member fixtures in each group will react similarly when controlled.

Cyclo control and power-cables are through-wired for easy installation.

The Cyclo series offers:

- Controllable RGB color-mixing and/or color temperature
- Bright output
- Long lamp life of 20,000 hours

Note: *It is important to read this manual through before you attempt to install this product.*

Cyclo fixtures

CYCLO 02

Cyclo 02 contains a single warm white tube and a single cold white tube.

It is designed as a functional lighting fixture for applications where dimmable color temperature control ranging from 2700K up to 6000K are desirable.

CYCLO 03

Cyclo 03 contains dimmable red, green and blue tubes and is a cost efficient RGB solution.

CYCLO 04

Cyclo 04 contains dimmable red, green, blue and white tubes, and provides a wider color range.

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 fixtures, follow the safety precautions listed below and observe all warnings in this manual and on the fixtures. If you have questions about how to operate these fixtures 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 fixtures from AC power before removing or installing a lamp, fuses, or any part, and when not in use.
- Always ground (earth) the fixtures electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault protection.
- Do not expose the fixtures to rain or moisture.
- Refer all service to a Martin service technician.

Protection from burns and fire

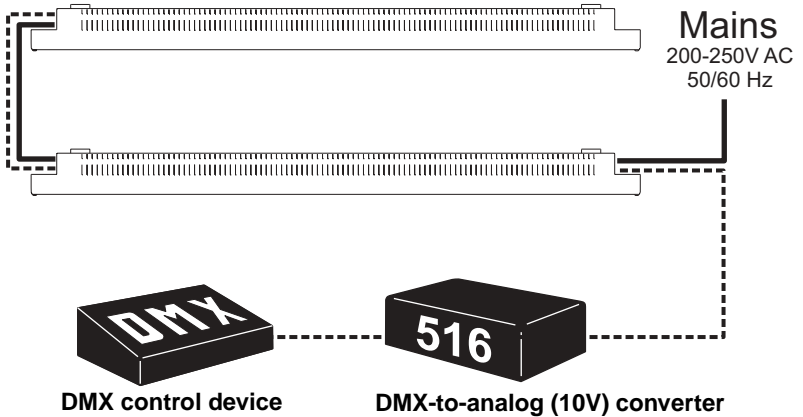
- Provide a minimum clearance of 0.1 meters (4 inches) around the fixture.
- Do not modify the fixture or install other than genuine Martin parts.
- Do not operate the fixture if the ambient temperature (Ta) exceeds 40° C (104° F).

Protection from injury due to falls

- Verify that all external covers and rigging hardware are securely fastened
- Block access below the work area whenever installing or removing the fixture.

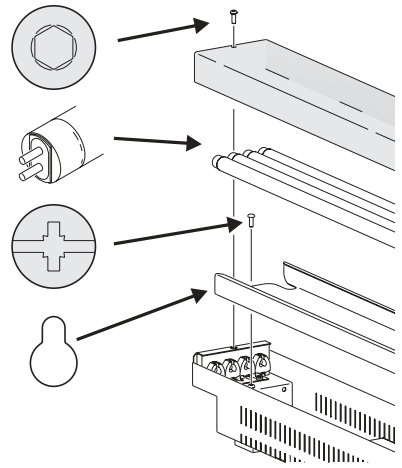
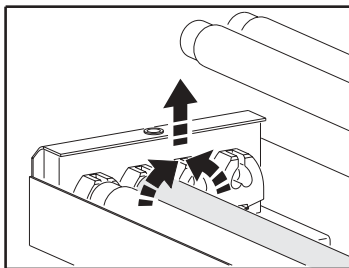
INSTALLATION

This section describes in general terms how to install the fixture and connect it to AC and dimmer power. These procedures shall be performed by qualified professionals.



Open the fixture:

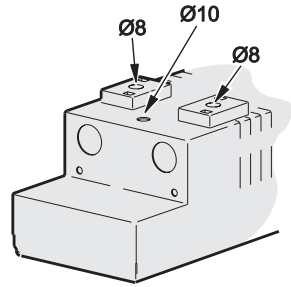
- 1 Remove the fixture's clear plastic cover using a 2.5 mm Allen wrench.
- 2 Carefully remove each of the tubes by rotating them (at the ends) until you are able to pull one end out, and then remove the entire tube.



- 3 Using a Phillips screwdriver, loosen the two screws holding the cover of the wiring housing in place; remove the cover.

To ensure adequate ventilation, we recommend that the Cyclo be installed with a minimum of 25 mm (1 inch) of free space on each side. Screw the fixture into place using, either:

- 2 x 10 mm hardware together with the supplied washers, separated by 1 metre (3.3 feet), or
- 4 x 8 mm hardware, in a matrix 1 metre by 6.5 cm square



Connect the AC power and dimmer control wiring (as described in the following sections) before replacing the wiring-housing cover, the tubes, and the clear plastic cover.

AC POWER

Maximum power usage data for the three Cyclo models is supplied in “Specifications - Cyclo 02” on page 11.

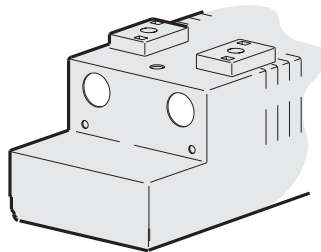
You can power Cyclo fixtures by wiring them in series. The internal wiring of the fixtures carries AC power through the fixture. Holes are supplied at both ends for input and output cables.

Warning: *In the Cyclo series fixtures incorporate a single electronic ballast per tube. Each of these “leaks” around 0,2 til 1 mA of power. Because of this we recommend connecting a maximum of 30 electronic ballasts (or tubes) per phase on a 30mA HPFI circuit breaker.*

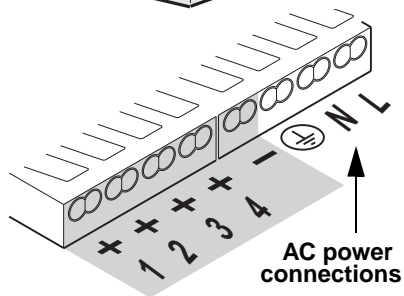
A normal 30 mA HPFI circuit breaker normally trips because of a current fault or leakage of approximately 20mA. It is important that the installation is carried out correctly in order to avoid unintentional tripping of the circuit breaker.

Many installations use common neutral leads in branch circuit distribution boxes. It is important that the neutral lead in the cable is connected to the same HPFI circuit breaker, that it is not connected to the neutral leads from other HPFI circuit breakers. The neutral lead must be only associated with that specific circuit breaker. Additionally it is important that the fixtures are connected correctly to the ground (earth) to ensure that the power leakage is able to run off.

The cable for AC power is passed through one of the two 5 mm holes at the end of the fixture. These are sealed with plastic and you will need to break a hole in one of the them.



A clamp connector can be found at each end of the fixture. One is used to supply power and dimmer control to the fixture and the other is used to send power and dimmer control onwards to other fixtures in a series. The number of terminals present on each clamp connector is dependent on the Cyclo model.



Use the three terminals *not* shaded in grey to connect AC power - L live, or positive), N (neutral) and ground (or earth).

Be sure to refer and comply with local standards. Some common AC cable configurations are:

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

If the fixture is being wired in series with other Cyclo fixtures of the same type, perform these steps at the other end of the fixture to connect it to the next fixture.

DIMMER CONTROL FROM A 516-II DMX TO 0-10 V CONVERTER

Note: *If you apply power to a Cyclo fixture that is not connected to a dimmer then it will operate at full power.*

The 516-II DMX to 0-10 V Converter has 16 analog outputs for connecting 0-10 V analog devices. For independent control, a Cyclo 02 requires two of these outputs (one per ballast), a Cyclo 03 requires three outputs, and a Cyclo 04 requires four outputs.

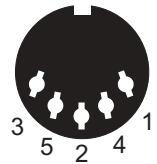
A maximum of 10 Cyclos (ballasts) of the same model can be wired in series to the same analog output/s on the 516-II DMX to 0-10 V Converter. Each Cyclo in the series will mimic the behavior of the others. Do not wire different Cyclo models in series to the same analog outputs.

This means that a single 516-II DMX to 0-10 V Converter can provide independent control of up to 8 groups of 10 Cyclo 02s (80 fixtures), 5 groups of 10 Cyclo 03s (50 fixtures), 4 groups of 10 Cyclo 04s (40 fixtures), or a combination of groups of up to 10 of each model.

Each output on the 516-II DMX to 0-10 V Converter is connected to both a 5-pin DIN socket and the 25-pin D-SUB socket. For the purposes of wiring, the pin configuration can be found on the rear panel of the 516 controller.

Wiring the 5-pin DIN connector

Use a 5-pin DIN connector to connect the controller to a series of one or more Cyclos of the same type. (The controller has 4 5-pin DIN outputs enabling control of up to four parallel series of Cyclo fixtures.)



Always connect the ground wire to pin 2, and control leads to the other pins (between 2-4 depending on the number of tubes in the Cyclo that is being connected). The pin number of each output is shown on the rear panel. Make a note of which colored leads are connected to which channels as well as which colored wire is the ground wire.

Note: *Connections can be tested without a controller by setting all pins on the converter's DIP-switch to the off position and then applying power to the converter and the devices.*

Connecting the dimmer control cable to a Cyclo fixture

The cable for dimmer control is passed through one of the two 5 mm holes at the end of the fixture. These are sealed with plastic and you will need to break a hole in one of the them.

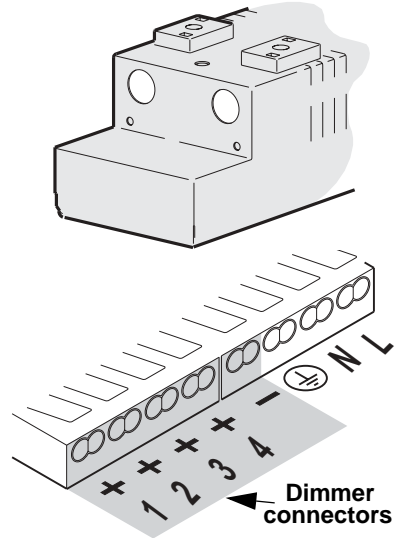
A clamp connector can be found at each end of the fixture. One is used to supply power and dimmer control to the fixture and the other is used to send power and dimmer control onwards to other fixtures in a series. The number of terminals present on each clamp connector is dependent on the Cyclo model.

Use the numbered terminals to connect dimmer control. (Note that there are fewer connectors on Cyclo models with fewer than four tubes.) Connect the ground (earth) lead to the - terminal. Connect the other leads to the appropriate connectors. Notes that there are two connectors at each position and that you can use either one of these.

The internal wiring in the fixture carries the dimmer control through the fixture. Holes are supplied at both ends for input and output cables. If the fixture is being wired in series with other Cyclo fixtures of the same type, perform these steps at the other end of the fixture to connect dimmer control to the next fixture.

Note: *You can simultaneously control dimming on multiple Cyclo fixtures of the same type by wiring them in series. However, each analog output from the 516 Converter supplies 20mA. This means that a maximum of 10 Cyclos (ballasts) in series can be controlled from each 516 Converter channel. Each ballast requires 1.5-2 mA.*

If you are connecting multiple Cyclo fixtures in series that the length and diameter of the control (dimmer) cabling must be dimensioned so that the voltage drop over the cabling is less than 0.5 volts.



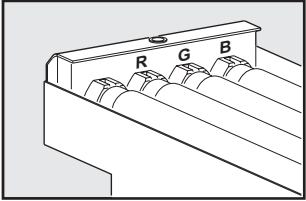
FLUORESCENT TUBES

Burning in new tubes

In order to obtain the full 20000 hour life time, new fluorescent tubes must be burned in for 100 hundred hours at full power (10 volts).

Identifying tube positions

Tube positions are identified in the Cyclo 03 and Cyclo 04 as follows:

Marking in fixture	Marking on tube	Color	Reference illustration
R	OSRAM 28/60	Red	
G	OSRAM 28/66	Green	
B	OSRAM 28/67	Blue	
None	OSRAM 28/827	2700K white	
	OSRAM 28/840	4000K white	
	OSRAM 28/860	6000K white	

CLEANING

We recommend that you clean the dust cover with a damp cloth.

SPECIFICATIONS - CYCLO 02

PHYSICAL

L x W x H 1190 x 63 x 88 mm (50.1 x 2.7 x 3.7 in)
Weight 3.8 kg (8.4 lbs)
Shipping dimensions 1210 x 115 x 95 mm, (51 x 4.8 x 4 in)
Shipping weight 4.1 kg (9.1 lbs)
Fixture color white (NCS 0402-G06-Y)

INSTALLATION

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

SOURCE

Approved lamp type OSRAM T5 FH 28 watt tubes
Light source T5 tubes (2x28W)
Expected lamp life 20000 hours

POWER

AC power 198V-254V,50/60hz
Dimmer control , 1-10V control
Maximum power and current @ 230 V / 50 Hz 0.28 A / 64 watts

THERMAL

Maximum ambient temperature (Ta) 40° C (104° F)

DYNAMIC EFFECTS

Color temperature control 2700K up to 6000K
Independent dimming of each tube via 516 Converter

CONTROL (VIA 516 CONVERTER)

Number of independently controllable dimming channels 16
Channels required per independently controlled Cyclo 02 group 2
Channels required per independently controlled Cyclo 03 group 3
Channels required per independently controlled Cyclo 04 group 4
Number of Cyclos per group (fixtures wired in series) 1-10 (of the same model)

ORDERING INFORMATION

Cyclo 02 P/N 90550020

INCLUDED ITEMS

Lamp OSRAM T5 FH28W/827 (2700K) (white)
Lamp OSRAM T5 FH28W/860 (6000K) (white)
User manual

ACCESSORIES

Martin 516 II DMX to 0-10V Converter P/N 90758225

SPECIFICATIONS - CYCLO 03

PHYSICAL

L x W x H	1190 x 81 x 88 mm (50.1 x 3.4 x 3.7 in)
Weight	4.7 kg (10.4 lbs)
Shipping dimensions	1210 x 115 x 95 mm, (51 x 4.8 x 4 in)
Shipping weight	5 kg (11 lbs)
Fixture color	white (NCS 0402-G06-Y)

INSTALLATION

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

SOURCE

Approved lamp type	OSRAM T5 FH 28 watt tubes
Light source	T5 tubes (3x28W)
Expected lamp life	20000 hours

POWER

AC power	198 V - 254 V, 50 / 60 Hz
Dimmer control	, 1-10V control
Maximum power and current @ 230 V / 50 Hz	.0.42 A / 96 watts

THERMAL

Maximum ambient temperature (Ta)	40° C (104° F)
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DYNAMIC EFFECTS

Dimmable tubes	Red, green and blue
Independent dimming of each tube via 516 Converter	

CONTROL (VIA 516 CONVERTER)

Number of independently controllable dimming channels	16
Channels required per independently controlled Cyclo 02 group	2
Channels required per independently controlled Cyclo 03 group	3
Channels required per independently controlled Cyclo 04 group	4
Number of Cyclos per group (fixtures wired in series)	1-10 (of the same model)

ORDERING INFORMATION

Cyclo 03	P/N 90550010
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INCLUDED ITEMS

Lamp	OSRAM T5 FH28W/60 (red)
Lamp	OSRAM T5 FH 28W/66 (green)
Lamp	OSRAM T5 FH28W/67 (blue)
User manual	

ACCESSORIES

Martin 516 II DMX to 0-10V Converter P/N 90758225

SPECIFICATIONS - CYCLO 04

PHYSICAL

L x W x H 1190 x 98 x 88 mm (50 x 4 x 3.7 in)
Weight 5.5 kg (12.1 lbs)
Shipping dimensions 1210 x 115 x 95 mm, (51 x 4.8 x 4 in)
Shipping weight 5.9 kg (13 lbs)
Fixture color white (NCS 0402-G06-Y)

INSTALLATION

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

SOURCE

Approved lamp type OSRAM T5 FH 28 watt tubes
Light source T5 tubes (3x28W)
Expected lamp life 20000 hours

POWER

AC power 198 V - 254 V, 50 / 60 Hz
Dimmer control , 1-10V control
Maximum power and current @ 230 V / 50 Hz 0.56 A / 128 watts

THERMAL

Maximum ambient temperature (Ta) 40° C (104° F)

DYNAMIC EFFECTS

Dimmable tubes Red, green, blue and white
Independent dimming of each tube via 516 Converter

CONTROL (VIA 516 CONVERTER)

Number of independently controllable dimming channels 16
Channels required per independently controlled Cyclo 02 group 2
Channels required per independently controlled Cyclo 03 group 3
Channels required per independently controlled Cyclo 04 group 4
Number of Cyclos per group (fixtures wired in series) 1-10 (of the same model)

ORDERING INFORMATION

Cyclo 04 P/N 90550000

INCLUDED ITEMS

Lamp OSRAM T5 FH28W/60 (red)
Lamp OSRAM T5 FH 28W/66 (green)
Lamp OSRAM T5 FH28W/67 (blue)
Lamp OSRAM T5 FH28W/840 (white)
User manual

ACCESSORIES

Martin 516 II DMX to 0-10V Converter P/N 90758225

