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◼ **ZUMTOBEL**

ZUMTOBEL AGILIO

Product Documentation: Controls and Commissioning

CONTENTS

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Specifications are subject to change without notice!

PRODUCT FEATURES

PAN & TILT

The fixture offers a motorized Pan from -225° to +225° degrees and Tilt from -100° to +100° degrees with Auto Position Correction (→ see "Position Correction") in 16 bit resolution.

Pan and tilt motors are equipped with motor brakes that keep the position of the luminary head in the exact position even when the power is off. This ensures that an initialization process (Reset) is only necessary to a limited extent (→ see Reset).

ATTENTION: Before manually moving the yoke or head be sure to disable the motor brakes (see "Manual Movement Button"). Do not manually move the yoke or head with active motor brakes ! This will damage the motors ! Bring the device back to home position before packing.

POSITION-CORRECTION

The fixture recognizes and saves the physical pan and tilt position at any time. If "Position Correction" is enabled the fixture will recognize any unintended removed from the correct position and brings it back to correct position automatically. The Position-Correction is enabled by default and can be disabled by RDM or DMX using the Control/Setting Channel.

RESET (INITIALIZATION PROCESS)

To get the correct physical position of zoom, pan and tilt the fixture need to do an initialization process before working with correct physical positions. This initialization process will move pan , tilt and zoom to the min./max. position to get reference values. This initialization process "Reset" must be triggered manually by double-click on the recessed Reset-Button A, by RDM or DMX using the Control/Setting Channel. It is also possible to enable an automatic reset at any power cycle of the fixture ("Auto Reset") - this is very helpful if exact positioning is needed, but will cause Reset-Noise at any power cycle.

Note: The initialization process is necessary if you have to work with physically correct positions (e.g. programming via DMX console). Remember to perform an initialization process (Reset) before programming light scenes or fix positions which need to be recalled exactly.

MANUAL MOVEMENT FEATURE

The manual movement feature allows the user to bring the luminary head into position manually. Press and hold button A to disable the Pan and Tilt motor breaks and Position Correction temporary to manually adjust the position by hand. Release the Button A to enable the Pan and Tilt motor breaks and Position Correction again.

As the fixture recognizes and saves the physical pan and tilt position at any time, it will stay in this position without power and after power cycle.

If the luminary was moved manually by "Manual Movement", the last DMX Position Information will be ignored and the fixture stays in the new manual position as long no <u>newer</u> DMX Position Information will be received (Pan/Tilt DMX Value Change). If a new DMX Position Information will be received, the fixture will follow the <u>absolute</u> DMX Information.

The manual adjusted Position is then deleted and will not add an offset to the DMX Position.

INTENSITY & DIMMER CURVES

The global output can be controlled by an intensity channel in 16 bit resolution following one if three select able dimmer curves (logarithmic, linear or square). The default dimmer curve is logarithmic.

The dimmer curve setting can be changed by RDM or by sending a special DMX value on the Control Channel (→ see Control / Special Channel).

ZOOM

The fixture has a motorized Zoom mechanism from narrow (DMX 000) to wide (DMX 255) beam angle.

PWM FREQUENCY

Using this setting allows the user to select between different PWM Frequencies for the LED driver. Changing LED driver PWM can help to avoid highfrequency resonances or to adjust LED-Frequencies to Camera Shutter frequencies. To do this, select a new PWM frequency using the Control Channel. The following PWM settings are available: 2200Hz, 3000Hz , 4800Hz, 9600Hz and the default 25kHz.

CONTROL / SPECIAL CHANNEL

A special Channel allows to change fixture settings by DMX. This could be very helpful if fixture performance or behavior does not fit to the installation application.

To avoid an unwanted change of settings in an installation most of the settings are "auto locked". To change one of the special fixture settings it is necessary to send an "unlock" signal before it is possible to do the change. Set the DMX Value for "Enable Special Control Channel Features (*) for 10s" and hold it for 3 seconds. Now change the settings you want to change within 10s. After 10 seconds the special control features will be locked automatically again.

Note: To activate a Fixture Reset it is not necessary to set "Enable Special Control Channel Features (*) for 10s" before.

PRODUCT INSTALLATION AND CONFIGURATION
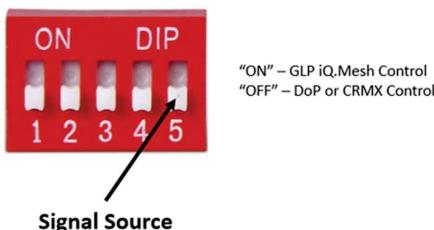
SIGNAL SOURCE SELECTION

Depending on the fixture version the Agilio can be controlled via DMX using DoP (Agilio DoP/iQ.Mesh Version) or DMX using Lumenradio CRMX (Agilio CRMX/iQ.Mesh Version).

Both fixture versions can also be controlled via the integrated GLP iQ.Mesh technology connected with a mobile device running the Agilio App.

To control the Agilio via DMX (DoP or CRMX) set the switch Nr. 5 of the coding switch block B to "**OFF**".

To control the Agilio via GLP iQ.Mesh set the DIP Switch Nr. 5 of the coding block B to "**ON**".

"ON" – GLP iQ.Mesh Control
"OFF" – DoP or CRMX Control

Signal Source

Coding Switch Block B				DMX / iQ.MESH	Signal Source Select
1	2	3	4	5	
--	--	--	--	0	Control via DMX (DoP or CRMX)
--	--	--	--	1	Control via iQ.Mesh (Agilio App)

USING GLP DoP (DMX OVER POWERLINE)*

only for Agilio DoP/iQ.Mesh Version

GENERAL INFORMATION ABOUT GLP DoP (DMX OVER POWERLINE)

The GLP DoP technology is an data protocol which can transmits DMX Data via one electricity line. For a Data transmission an optional available GLP DoP Converter will transmit the connected 512 DMX channels by modulating the DMX data on the power line using a specific DoP Channel. Up to 10 different DoP Channels can be selected, so that it it possible to transmit in total 10x512 DMX Channels (=10 DMX Universes) via one power line. Due to the high-frequency transmission, a DoP system can interfere with other services in the same frequency band. Note that the transmitted DoP data are freely distributed in the power network within the transmission range of a DoP converter. In order to counteract the uninhibited spread of data in the power

infrastructure, we recommend installing line filters that block the DoP signal at the appropriate system endpoints.

Example with one power line and only one fixture and ending power distribution. DoP line is decoupled from the power infrastructure on the input side:

1x GLP PLC Filter
1x GLP DoP Converter DinRail TX512/RX024
1x AGILIO DoP/iQ.Mesh

Example with one power line and multiple fixtures and ending power distribution. DoP line is decoupled from the power infrastructure on the input side:

1x GLP PLC Filter
1x GLP DoP Converter DinRail TX512/RX024
1..24x AGILIO DoP/iQ.Mesh
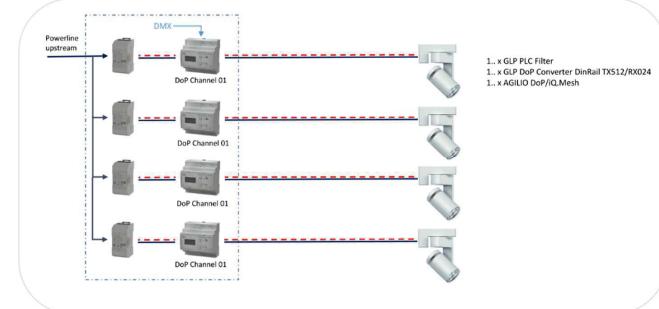
Example with one power line and multiple fixtures with ongoing power distribution. DoP line is decoupled from the power infrastructure on the input and output side:

2x GLP PLC Filter
1x GLP DoP Converter DinRail TX512/RX024
1..24x AGILIO DoP/iQ.Mesh
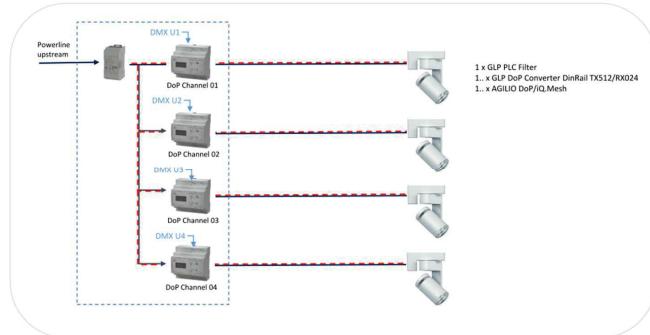
Example with one power line, multiple fixtures, DMX Signal decoupling and with ongoing power distribution. DoP line is decoupled from the power infrastructure on the input and output side:

2x GLP PLC Filter
1x GLP DoP Converter DinRail TX512/RX024
1x GLP DoP Converter UM TX512/RX512
1..24x AGILIO DoP/iQ.Mesh

Example with multiple power line on one single phase, multiple fixtures and with ending power distribution. Each separate DoP line is decoupled from the power infrastructure on the input side and decoupled from all other DoP Lines:

1.. x GLP PLC Filter
1.. x GLP DoP Converter DinRail TX512/RX024
1.. x AGILIO DoP/iQ.Mesh
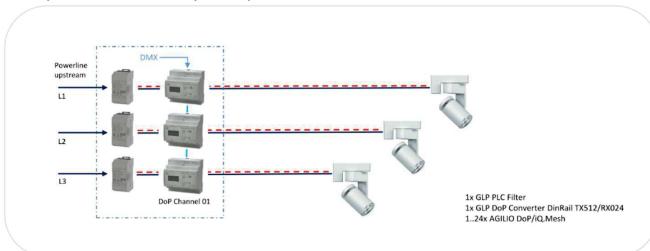
Example with multiple power line on one single phase, multiple fixtures and with ending power distribution. The different DoP lines are decoupled from the power infrastructure on the input side but not decoupled from all other DoP Lines:

Example with multiple power line on different power phases, multiple fixtures and with ending power distribution. Each separate DoP line is decoupled from the power infrastructure on the input side and decoupled from all other power phases and DoP Lines:

Note: The Agilio track adapter can only be contacted with the 3rd power rail of the 3-phase Power Track.

When installing a GLP DoP Infrastructure, be sure to observe the following system limitations and recommendations:

Description	Limits
Power input/output:	minimum 85 V AC nominal, 47/63 Hz maximum 305 V AC nominal, 47/63 Hz
Temperature range, Operating	minimum -20° C (-4°F) maximum 70° C (158°F)
Recommended Cable type	DMX cable, 2x0,34mm² CAT5e / 7 cable, 27AWG
Device count in one DMX line	maximum 32 devices
Device count in one power line	theoretically 128 devices recommended max. 32 devices

Cable length between two devices	max. 100m (DMX cable, 2x0,34mm²) max. 125m (CAT5e/7 cable, 27AWG)
Cable length from controller to last device in line	max. 250m (DMX cable, 2x0,34mm²) max. 310m (CAT5e/7 cable, 27AWG)

When using DoP systems, it should be noted that the functionality is very much dependent on the type of installation such as cable lengths, the installation materials used such as cable types and environmental influences, e.g. external external interference. Actual data throughput also depends heavily on network conditions and environmental factors, including traffic volume and network overhead. Interference from devices that generate electrical noise can also affect the performance of this product. These can cause the actual transmission options to vary greatly in practice. GLP is not liable for functional impairments that can be traced back to external interference, insufficient installation care or material quality of the infrastructure.

We therefore urgently recommend carrying **out** a test setup under real ambient conditions before complex fixed installations.

DoP System and Infrastructure Checklist

In order to eliminate possible sources of error in advance of an installation, careful pre-planning is required. Unfavorable cabling, interference signals on the lines or fuse elements can severely impair the function. To ensure trouble-free operation, you will find a checklist below that you should go through with the specialist planner during the planning phase.

Questions and factors	
What is the number and type of the used DoP Converter in the power line ?	
What is the number and type of the used DoP Fixture in the power line ?	
What is the number and type of third party devices in the power line ?	
Are there fuses or other electronically elements such as circuit breakers, fault circuit breakers, etc. in the power line ? If so, how many and which ones ?	
Are PLC line filters installed ? If yes, how many and at which position in the DoP line ?	
What is the distance between the DoP converters in the electrical distribution ?	
What is the number of parallel non-DOP lines in the cable duct/wall ?	
What is the length of parallel non-DOP lines in the cable duct/wall ?	
What is the number of parallel running DOP lines in the cable duct/wall ?	
What is the length of parallel running DOP lines in the cable duct/wall ?	
What is the line length from the DoP Converter to the last DoP device in the DOP Line ?	
What is the number of nodes in the DOP line after the DoP converter ?	
What is the number of transition points / terminals / connectors in the DoP Line ?	
What is the number of DOP converters per DMX line ?	
What is the length of the DMX line to the last DoP Converter in the DMX line ?	
Is a cyclic power cycle of the DoP converters and DoP devices planned/possible ?	

Are there larger machines and/or converters in the immediate vicinity of the DoP Converter or DoP Line ?	
Has the cabling of the DoP converters been implemented properly (no crossover of In and Out) ?	
Is there a wiring or installation plan ?	
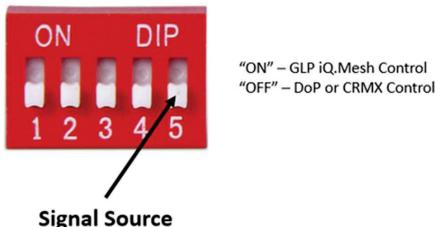
CONFIGURATION AGILIO FOR GLP DOP (DMX OVER POWERLINE) CONTROL

The AGILIO DoP/iQ.Mesh is a fixtures with an implemented GLP DoP receiver module which will searching for valid DoP Signal on the connected electricity line. As a GLP DoP transmitter can transmit on up to 10 different DoP Channels, the DoP Channel to be received must be set on the AGILIO DoP fixture as well. At the AGILIO DoP/iQ.Mesh this can be done conveniently via the coding switch block B.
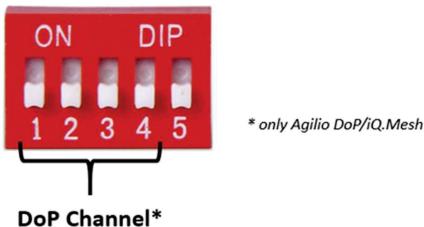
If the DoP channels are correctly set on the DoP transmitter and the DoP receiver, the DoP fixture can directly be controlled via the DoP Signal by the DMX Signal which is connected to the DoP Transmitter. The received DoP Signal will then be decoupled and internally converted back into the original DMX Data to control the fixture by DMX Signal as usual.

1.) Enable Fixture Control via GLP DoP Technology

Set the DIP Switch 5 to "OFF" on coding switch block B for enable DoP Control.

"ON" – GLP iQ.Mesh Control
"OFF" – DoP or CRMX Control

Signal Source

2.) Set the DOP Channel

* only Agilio DoP/iQ.Mesh

DoP Channel*

The following chart is the Coding Switch Block B Setting for the Agilio DoP/iQ.Mesh:

Coding Switch Block B	DMX / iQ.MESH	DOP Channel

1	2	3	4	5	
0	0	0	0		not valid
1	0	0	0		1
0	1	0	0		2
1	1	0	0		3
0	0	1	0		4
1	0	1	0	Need to be set to "0"	5
0	1	1	0		6
1	1	1	0		7
0	0	0	1		8
1	0	0	1		9
0	1	0	1		10
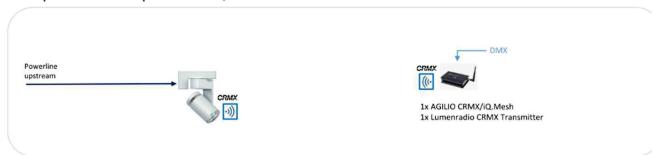
USING LUMENRADIO CRMX (DMX OVER WIRELESS)*

only for Agilio CRMX/iQ.Mesh Version

Lumenradio CRMX is a smart way to send DMX Data wireless to Fixtures with included Lumenradio CRMX receiver module. The AGILIO CRMX/iQ.Mesh is a fixtures with an implemented Lumenradio CRMX receiver module which will searching for valid CRMX Signal if the fixture is unlinked.
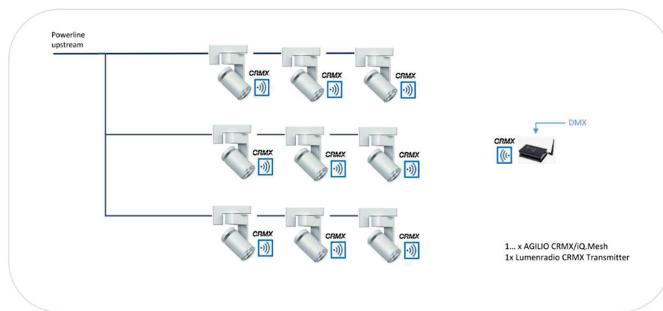
Example with one power line, one fixture and one Lumenradio CRMX Transmitter:
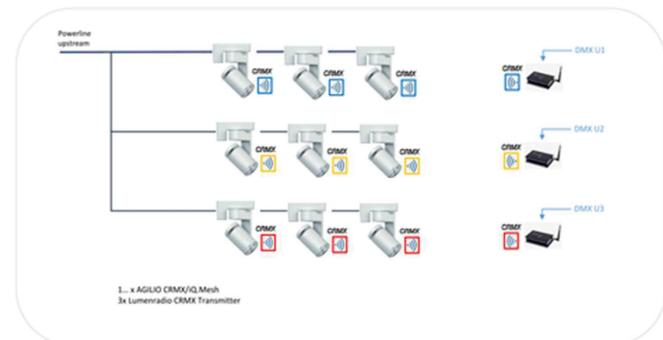
Example with one power line, multiple fixture and one Lumenradio CRMX Transmitter:


Example with multiple power lines on one single power phase, multiple fixture and one Lumenradio CRMX Transmitter:

Example with multiple power lines on one single power phase, multiple fixture and multiple Lumenradio CRMX Transmitter:

Example with multiple power lines on different power phase, multiple fixture and one Lumenradio CRMX Transmitter:
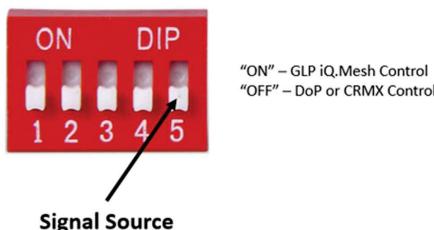
Note: The Agilio track adapter can only be contacted with the 3rd power rail of the 3-phase Power Track.

CONFIGURATION AGILIO FOR LUMENRADIO CRMX CONTROL

To control the fixture via DMX using a wireless Lumenradio CRMX connection, it is necessery to link the device to a Lumenradio CRMX network. As long as a fixture is not linked, it is constantly looking for a suitable transmitter. If the transmitter's pairing mode is active, the transmitter and fixture connect to form a secure connection. Once the fixture is linked to a CRMX transmitter, this link remains permanent. A further link with another transmitter is then no longer possible. To remove the spotlight from an existing link, the device must be unlinked.

1.) Enable Fixture Control via CRMX Technology - Set the DIP Switch 5 to "OFF" on coding switch block B for enable Lumenradio CRMX Control.

"ON" – GLP iQ.Mesh Control
"OFF" – DoP or CRMX Control

Signal Source

DIP Switch 1 to 4 have to function on this fixture version.

2.) Unlink the fixture from any old CRMX link - Press and hold the button B (recessed) >5s.

3.) Start Pairing process of the transmitter - start the pairing process at the Lumenradio CRMX transmitter device (→ see user manual of the Lumenradio CRMX transmitter)

→ now the CRMX transmitter should find the Agilio fixture and both devices will set up a save connection.
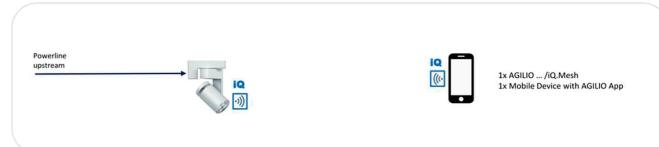
USING GLP IQ.MESH CONTROL*

Agilio DoP/iQ.Mesh Version & Agilio CRMX/iQ.Mesh Version

The Agilio fixtures have an integrated GLP iQ.Mesh module for communication via an innovative mesh network , called the GLP iQ.Mesh. GLP iQ.Mesh is a smart way to control multiple Agilio fixture by using the Agilio App on a mobile device. Use Switch 5 on Coding Switch Block B for enable iQ.Mesh Control. Each fixture receives, regenerates and sends the signal and thus ensures optimal connections and almost unlimited distances. The Agilio mobile device app connects to an optimally selected Agilo device in the network via bluetooth and, if necessary, switches to an other device in the network to guarantee the best possible conditions.

The GLP iQ.Mesh Control allows to control up to 32 Agilios by mobile device app. This is a particularly user-friendly option to control several Agilios quickly and conveniently via mobile device based on a new mesh network. The app makes it possible to access the devices, read out information, update firmware and to do fixture configurations. Groups of several devices in the network can be formed and each of these groups can be controlled individually. Different light scenes and general brightness can be controlled. Once a light scene has been created, it can be stored in several available memory locations and called up at any time.

Example with one power line, one fixture and one Mobile Device with Agilio App:

Powerline upstream

1x AGILIO ... /iQ.Mesh
1x Mobile Device with AGILIO App
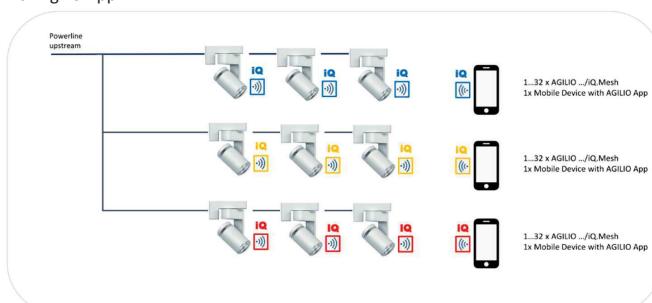
Example with one power line, multiple fixture and one Mobile Device with Agilio App:

Example with multiple power lines on one single power phase, multiple fixtures and one Mobile Device with Agilio App:

Example with multiple power lines on one single power phase, multiple fixtures and multiple Mobile Device with Agilio App:

Example with multiple power lines on different power phase, multiple fixtures and one Mobile Device with Agilio App:
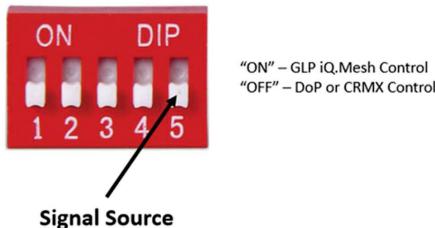
Note: The Agilio track adapter can only be contacted with the 3rd power rail of the 3-phase Power Track.

CONFIGURATION AGILIO FOR IQ.MESH CONTROL

1.) Enable Fixture Control via GLP iQ.Mesh Technology

Set the DIP Switch 5 to "ON" on coding switch block B for enable GLP iQ.Mesh Control.

"ON" – GLP iQ.Mesh Control
"OFF" – DoP or CRMX Control
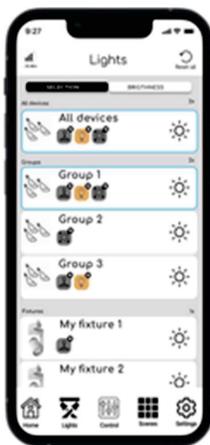
DIP Switch 1 to 4 have no function on this fixture version.

2.) Unlink the fixture from any old GLP iQ.Mesh link

→ Press and hold the button B (recessed) >5s.

3.) Start Pairing process of the Agilio mobile device app

→ start the pairing process at the Agilio mobile device app (→ see user manual of the Agilio App)
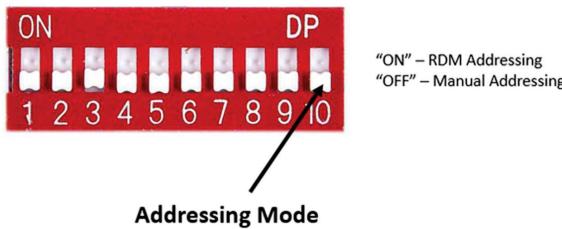
Now the Agilio App on the mobile device should find the Agilio fixture and both devices will set up a save connection.

SET DMX START ADDRESS

To control the AGILIO DoP/iQ.Mesh or Agilio CRMX/iQ.Mesh by DMX it is necessary to configure the fixture with a valid DMX start address. At both versions the DMX start address can be set by two different ways:

a.) **Addressing Mode : Manual** (→ see Addressing Mode Manual)
b.) **Addressing Mode : RDM** (→ see Addressing Mode RDM)

To configure the fixture how you want to set the DMX start address, use the DIP switch 10 at the Code Switch Block A.
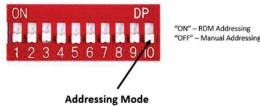

| Addressing Mode	Switch 10 of the Coding Switch Block A
Manual Addressing Mode	0
RDM Addressing Mode	1
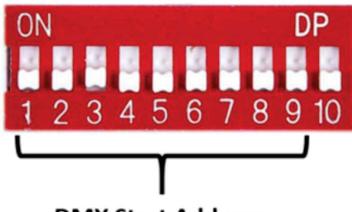
ADDRESSING MODE : MANUAL

Using the Addressing Mode Manual the Code Switch Block A offers technicians and semiprofessional users the most easiest way of setup.
(1) Set the Switch Nr. 10 of the Coding Switch Block A to "OFF" which will enable the manual addressing.

"ON" – RDM Addressing
"OFF" – Manual Addressing

Addressing Mode

(2) Set the ***DMX start address*** of the fixture by using the Switches 1..09 of the Coding Switch Block A.

DMX Start Address

Note that the switches are using a binary coding. We suggest to use a DIP Switch App on your mobile device to quickly calculate the correct switch setting.
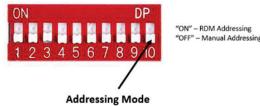
DMX Address	DIP Switch								
	01	02	03	04	05	06	07	08	09
Not valid	0	0	0	0	0	0	0	0	0
001	1	0	0	0	0	0	0	0	0
002	0	1	0	0	0	0	0	0	0
003	1	1	0	0	0	0	0	0	0
004	0	0	1	0	0	0	0	0	0
005	1	0	1	0	0	0	0	0	0
...	...	...	...	...	...	...	...	...	...
503	1	1	1	0	1	1	1	1	1
504	0	0	0	1	1	1	1	1	1
505	1	0	0	1	1	1	1	1	1

Note: If using the manually **addressing** by the Coding Switch Block A will not allow to change the DMX address by RDM afterwards, but you can still use all other RDM PIDs.

ADDRESSING MODE : RDM

Using the RDM option will allows the technician to edit the DMX start address by RDM PIDs. This can be very helpful if you need to be more flexible in addressing, the DMX start addresses are not defined while installation or if addresses will change regularly in an installation.

(1) Set the Switch Nr. 10 of the Coding Switch Block A to "ON" which will enable the RDM Addressing Mode.

"ON" – RDM Addressing
"OFF" – Manual Addressing

Addressing Mode

Note: If using the addressing by RDM the set DMX Address of the DIP Switches will be ignored completely, <u>as long the RDM DMX address is not set to 512</u>. If the RDM DMX address is set to 512, the fixture will use the DMX address of the DIP Switches.

FIXTURE SETTINGS

DIMMER CURVE

The global output can be controlled by an intensity channel in 16 bit resolution following one if three select able dimmer curves. Available dimmer curves are:

- logarithmic (Default)
- linear
- square

The dimmer curve setting can be changed by RDM or by sending a special DMX value on the Control Channel (→ see Control / Special Channel).

NO-SIGNAL

Using this fixture settings the operator can define what the fixture should do if no valid control signal is received.

- **Hold last received Signal** - the fixture will stay in position and perform of the last received valid DMX Signal
- **Blackout** - The fixture will stay in position of the last received valid DMX Signal but will fade out to no light output.

The No-Signal Setting can be changed by RDM or by sending a special DMX value on the Control Channel. To change this setting by DMX Control Channel it is necessary to send an unlock signal "Enable Special Control Channel Features" for 3s hold before choosing the new No-Signal setting. (>see Control Channel)

AUTO RESET

This setting allows the user to enable an automatically reset after each power cycle - this is very helpful if exact positioning is needed, but will cause Reset-Noise at any power cycle.

POSITION-CORRECTION

If "Position Correction" is enabled the fixture will recognize any unintended removed from the correct position and brings it back to correct position automatically. The Position-Correction is enabled by default and can be disabled by RDM or DMX using the Control/Setting Channel.

FAN MODE

Using this setting allows the operator to select between different behavior of the Fan and Temperature Management of the fixture. This can be very helpful in case of very hot or noise sensitive ambient:

- **Regulated -** Using this setting gives priority to light output and only operates fans as necessary. If the fixture is blacked out, fans run at minimum speed. When light output intensity is increased, temperature regulation increases fan speed to the level necessary to keep the fixture at optimum

temperature. If light output is set to maximum intensity but the fans can keep the fixture at optimum temperature, there will be no regulation of light intensity. If the fixture begins to exceed optimum temperature and Fan is running on max. speed, light intensity will be limited until optimum temperature can be maintained.

- **Medium -** Using this setting the fixture sets fans to constant operation at medium speed. Light output intensity is reduced to a level where it will normally remain constant at ambient temperatures of up to 45° C (113° F). Intensity is smoothly limited further if it becomes necessary in order to keep fixture temperature at optimum level.
- **Low -** Using this setting the fixture sets fans to constant operation at low speed and is optimized for minimum noise. Light output intensity is reduced to a level where it will normally remain constant at ambient temperatures of up to 30° C (86° F). Intensity is smoothly limited further if it becomes necessary in order to keep fixture temperature at optimum level.

The Fan Mode Setting can be changed by RDM or by sending a special DMX value on the Control Channel. To change this setting by DMX Control Channel it is necessary to send an unlock signal "Enable Special Control Channel Features" for 3s hold before choosing the new Fan Mode Setting. (>see Control Channel)

LOAD SETTING DEFAULTS

The fixture will load all default fixture settings. This will not reset device counters or service timer.