



Made in Italy



## AR330500TC

Power supply units and control gear



### AR330500TC DMX power supply unit

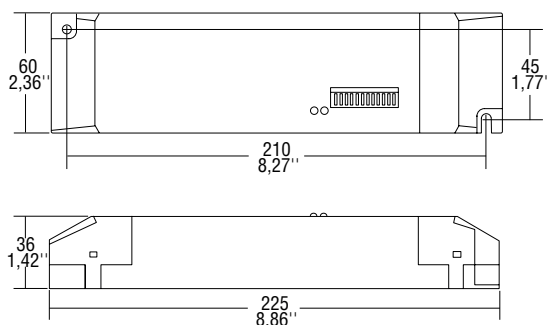
#### WARNING!!!

Please read the following instructions carefully.

#### IMPORTANTE:

- Although LED runs on a very low voltage, always cut off the power supply before installing the LED light or subjecting it to maintenance.
- Class I unit: categorically needs grounding.
- This fixture must be installed by a qualified electrician.
- Install the device in a well-ventilated place.
- Il dispositivo in funzione genera calore.
- Unauthorised alterations or tampering of the product will invalidate all the conditions of guarantee.
- L&L Luce&Light is not responsible if its fixtures are not installed in accordance with local safety standards.
- Data contained in this document may be changed at any moment without prior notice and do not place L&L Luce&Light under any implicit or explicit obligation.

Direct current dimmable electronic drivers for power LED.



Article	Code	P out W	V out DC	I out DC	n° LED max.	V out max.	ta °C	tc °C	λ max. Power Factor	η max. Efficiency
<b>Constant current output</b>										
<b>AR330500TC</b>		36	42 max.	3x500mA cost.	3x6	49	-25...+45	70	0,97	-

#### Standards reference

EN 55015  
EN 60598-1  
EN 61000-3-2  
EN 61347-1  
EN 61347-2-13  
EN 61547  
VDE 0710-T14

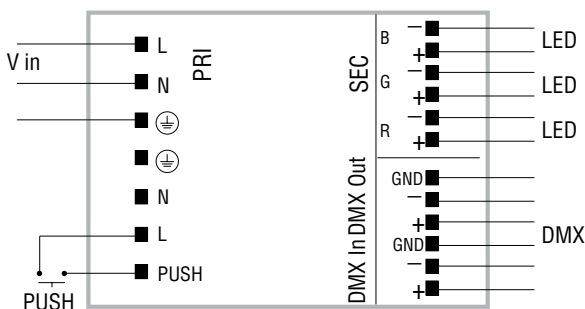
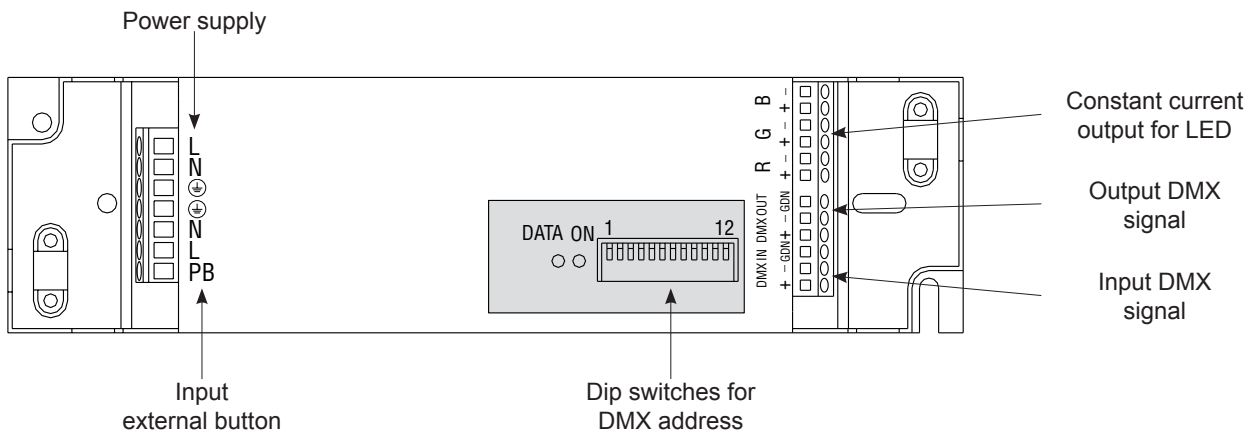
Voltage  
AC 220 ÷ 240V

Frequency  
50...60Hz

Power  
0 ÷ 36W

- Dimmable electronic driver with current output for power LED, with 3 outputs (RGB).
- It's possible to connect to each output from 1 to 6 in series LED.
- Active Power Factor Corrector.
- IP20 independent driver, for indoor use.
- Can be used with the DMX 01 control units,
- Supplied with terminal cover and cable retainer.
- Opposite input and output terminal blocks (terminal area 2,5 mm<sup>2</sup>).
- 8 bit PWM dimming control.
- Isolated DMX line.
- Features of the DMX regulation:
  - Standalone mode with 16 light show and 5 cycle speeds set by dip switch. Possibility to use a push connected to the primary side to stop and start cycle and switch on and off;
  - DMX mode based on DMX 512 Standard. Dipswitch for setting Dmx address and line termination resistor;
  - LED indicator of the state of DMX trasmission and show speed;
  - Quarz for 8 hour synchronized show without DMX connection.
- Double terminal blocks to loop other units.
- Clamping screws on primary and secondary circuits for cables with diameter: min. 6 mm - max. 9 mm.
- Driver can be secured with slot for screws.
- Protections:
  - against overheating and short circuits;
  - against mains voltage spikes;
  - against overloads.
- Can be switched on and off on secondary circuit for power LED.
- Suitable for the supply of Power LED.

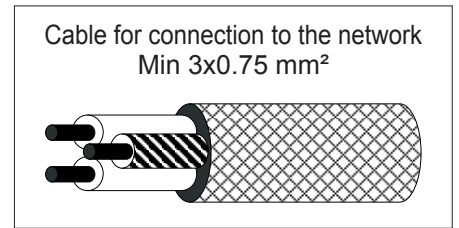
**Wiring diagrams:**



**IT IS RECOMMENDED TO INSTALL A SWITCH IN THE PRIMARY CIRCUIT.**  
 IN THE EVENT OF A FAILURE AND FOLLOWING RECOVERY THE MAINS, THE FIXTURE STARTS TO OPERATE EVEN IF IT WAS PREVIOUSLY TURNED OFF WITH THE SYSTEMS PRESENT IN THE DEVICE (for example button NA).  
 In case of prolonged disuse is good practice to turn off the controller interrupting the mains voltage.

**Maximum distances Driver - LED**

Driver constant voltage (max. 70W - 24V)				
Distance (m)	5	10	20	30
Cable section (mm <sup>2</sup> )	0,75	1	1,5	2,5
Driver constant voltage (150W - 24V / 70W - 12V)				
Distance (m)	5	10	20	30
Cable section (mm <sup>2</sup> )	1,5	2,5	4	4
Driver constant current (350mA - 500mA)				
Distance (m)	5	10	20	50
Cable section (mm <sup>2</sup> )	0,25	0,25	0,5	1
Driver constant current (700mA - 1A)				
Distance (m)	5	10	20	50
Cable section (mm <sup>2</sup> )	0,5	0,5	1	2,5
Dimmable driver (350mA - 500mA)				
Distance (m)	5	10	15	-
Cable section (mm <sup>2</sup> )	0,25	0,25	0,5	-
Dimmable driver (700mA - 1A)				
Distance (m)	5	10	15	-
Cable section (mm <sup>2</sup> )	0,5	0,5	1	-



The AR330500TC device has been designed for piloting, powering and control of LED lighting equipment with RGB technology. It uses a PWM (Pulse Width Modulation) technique to control the intensity of the three primary colours (Red, Green, Blue); by means of the additive colour synthesis process it is theoretically possible to reproduce any colour.

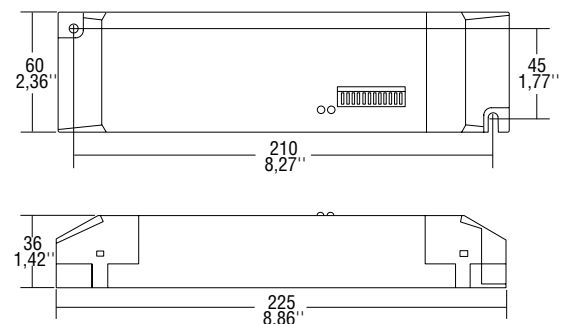
PWM technology consists of LEDs turning on and off at speeds that are higher than the optical persistence in the retina (about 200 Hz). The perceived intensity is proportional to the ratio between the on and off times. The driver is equipped with outputs for piloting current controlled LED equipments.

The connection is carried out with 6 wires (+R-R, +G-G, +B-B). The piloting current is 500 mA. The intensity of the primary colours is controlled with 8 bit bytes corresponding to 256 levels; it is therefore possible to obtain by synthesis up to 16.7 million colours. To carry out colour dynamic change sequences, the device has the following function modes.

The “stand-alone” mode, which offers the following options: with the “Easy-Run-Menu” function it allows a sequence (show) to be chosen from those already stored in the memory of the device and to reproduce it with a desired selectable speed. The device can be connected to a remote push button to manually activate execution of the selected sequence. It is possible to synchronize other units without any control connection between the various devices. In this case synchronization is entrusted to the internal quartzes and all the devices must be connected to a single power supply and the same show and the same running speed on each device must be selected.

Thanks to the interface which is compatible with the USITT DMX 512(1990) protocol it is possible: to interlock the function of the device to a control unit or an external DMX recorder, executing any program. Insert the product in a DMX configuration with chain connections (daisy-chain), connecting other DMX devices through the in/out connectors.

- DMX In: Input DMX signal
- DMX Out: Output DMX signal
- DIP 1: DIP group with 12 dip-switch commutators
- Red LED DATA: LED DMX data monitoring and show speed
- Green LED ON: LED connection to mains 230Vac
- R G B: Direct current outputs for piloting current LEDs
- LN: Input power
- PB: Input external control push button



**Technical specifications**

<b>Electrical section</b>	
Power supply:	electronic ballast with universal input 220-240 VAC, 50+60 Hz, protected against short circuits
Capacity:	36W
Power factor:	0,9 (PFC)
LED control mode:	PWM (Pulse Width Modulation)
Definition:	8 bit byte with 256 levels
Synthesized colours:	16.770 million (2563)
LED control outputs:	3 (RGB)
Output voltage:	massima 42VDC, SELV
Output current:	500mA
Controllable devices:	No. 6 LEDs RGB of power x colour
<b>Control section dynamic chromatic sequences</b>	
Digital interface:	RS485 with opto-isolator and integrated buffer, compatible with USITT DMX512 (1990) protocol
Address DMX:	n.1 input for DMX signal, protected against over-voltage
Indirizzo DMX:	can be set by means of dip-switch with value from 1 to 511
Necessary DMX channels:	3 channels
Output DMX:	n.1 output protected against over-voltage
DMX terminal resistance:	120 ohm resistor, can be inserted by means of dipswitch
Diagnostics:	LED for indicating status of DMX connections
“Easy-Run-Menu” function:	n.16 stored shows (8 with set colours 8 dynamic) n. 5 running speeds
Input for external activation push button	
LED for indicating show running speed	
Synchronization quartz (8 hours) without DMX cable	
<b>General construction characteristics</b>	
Degree of protection:	IP 20
Operating temperature:	It functions in environments with -20° + 45°C
Dimensions:	Dimensions: 225mm x 60mm x 36mm
Weight:	230g

**Basic instructions for the use of dip-switches**

The function of the device is set by the user by modifying the configuration of the dip-switch commutators which are on the front of the unit. In this manual, for the sake of convention, the ON (1) position is when the lever is down and the OFF (0) position is when it is high. The device is equipped with 12 dip-switches, with which all the functions of the device can be controlled.

DIP	Mode	DMX	STAND-ALONE
1		Addr 2 ^ 0	SPEED 1
2		Addr 2 ^ 1	SPEED 2
3		Addr 2 ^ 2	SPEED 3
4		Addr 2 ^ 3	SPEED 4
5		Addr 2 ^ 4	SHOW 2 ^ 0
6		Addr 2 ^ 5	SHOW 2 ^ 1
7		Addr 2 ^ 6	SHOW 2 ^ 2
8		Addr 2 ^ 7	SHOW 2 ^ 3
9		Addr 2 ^ 8	MODE
10		MODE	MODE
11		MODE	MODE
12		Res. Termination	Res. Termination

In DMX function mode

- Dip-switch 1-9 Attribution of DMX address
- Dip-switch 11 Selection DMX mode
- Dip-switch 12 Termination Resistance

In stand-alone/master function mode

- Dip-switch 1-4 Selection of running speed of the show
- Dip-switch 5-8 Selection of the show
- Dip-switch 9-11 Selection mode with or without external push button
- Dip-switch 12 Always Off

Function modes

The driver has three different function modes, which can be selected by attributing different configurations to the dip-switches from number 9 to number 12 of the DIP2 group.

Name mode	9	10	11	12	DMX CH.
DMX	-	0	0	0	3
Stand-alone without external button	n.u.	0	1	0	-
Stand-alone with external button	n.u.	1	1	0	-

**“DMX” mode**

In the “DMX” mode the function of the device is controlled by data sent by a console or an external recorder. AR330500TC is controlled with 3 DMX channels to which the RGB outputs are interlinked for LED control, the 3 control channels operate on the outputs as shown in the following table.

- Base channel RED
- Base channel + 1 GREEN
- Base channel + 2 BLUE

To set the “DMX” mode:

- Put dip-switches 10-11-12 of the DIP2 group into the OFF position.
- Set the DMX address inside the system under the control unit. The DMX address is the number of the first channel of the controller which has been assigned to control of the device in question (base channel). Each device is ready to receive an address from between number 1 and 511. The address is set with dip-switches 1-2-3-4-5-6-7-8-9 ; this ON /OFF sequence can be seen as a 1/0 sequence, that is as a binary number. The table on page 8 allows each of the binary configurations of the nine dip-switches to be univocally associated to the corresponding number between 1 and 511.

*Note: DMX channel number 1 is selected both if binary number 0 is set and if number 1 is set (DMX channel zero does not exist).*

- Insert (if necessary) DMX line termination resistance by putting dip-switch 12 into the ON position.
- In this function mode any DMX devices connected to the output of the device must be managed as independent units in a DMX chain connection (daisy-chain).

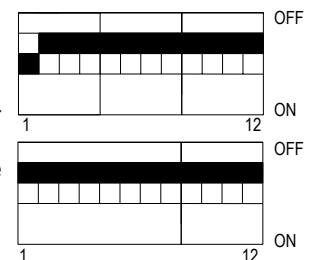
In the DMX mode it is possible to check the quality of the DMX data connection by means of the red LED on the side of the dip-switches:

- If the LED is off this means that the DMX signal is not present
- If the LED flashes the DMX signal is correct
- If the LED emits just two short flashes, the DMX cable is inverted or faulty.

**Example 1**

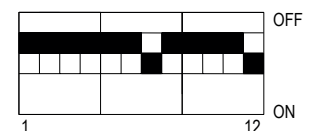
Device in “DMX 3 channels” mode with DMX address “1” and outputs controller by 3 channels; termination resistance not inserted.

Both configurations are valid because the DMX “0” address does not exist and is made to coincide with address “1”.



**Example 2**

Device in “DMX 3 channels” mode with DMX address “64” and outputs controlled by 3 channels; termination resistance inserted.



**“Stand-alone/master without external push button” mode**

In this mode the “Easy-Run-Menu” function is used which allows the user to automatically have the AR330500TC device carry out one of the colour sequence (shows) stored in the memory. The shows are selected by means of dip-switches 5-6-7-8. The running speed of the sequence is selected by means of dip-switches 1-2-3-4.

Table speed execution show					
Speed	DIP				Duration Step
	1	2	3	4	
0	0	0	0	0	10,6 min
1	1	0	0	0	5,3 min
2	0	1	0	0	160 sec
3	0	0	1	0	80 sec
4	0	0	0	1	30 sec

Table show available in memory					
No. show	DIP				Chromatic sequence
	5	6	7	8	
0	0	0	0	0	Red Green Blue
1	1	0	0	0	Red Green Blue White
2	0	1	0	0	Blue Green Blue Red
3	1	1	0	0	Green Blue
4	0	0	1	0	Green Bluish Blue
5	1	0	1	0	Red Blue
6	0	1	1	0	Red Green
7	1	1	1	0	Red Yellow Green
8	0	0	0	1	Red
9	1	0	0	1	Green
10	0	1	0	1	Blue
11	1	1	0	1	Yellow
12	0	0	1	1	Bluish
13	1	0	1	1	Purple
14	0	1	1	1	White cold
15	1	1	1	1	White warm

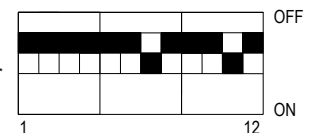
The red Data LED, by flashing, indicates the running speed of the selected stored show. In the stand-alone/master mode, if the system includes multiple devices it is possible for all the devices to function in a synchronized way without any DMX connection. To this end all the devices must be connected to a single power supply and the same show must be selected on all of them, as well as the same running speed. Synchronization is entrusted to the internal quartzes of the devices.

To set the “stand-alone/master without external push button” mode:

- Put dip-switch 11 in the ON position
- Put dip-switch 10 in the OFF position

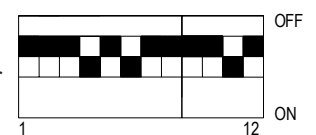
**Example 1**

Device in stand-alone/master (without push button) with colour show number 4 run at speed number 0 (zero).



**Example 2**

Device in stand-alone/master (without push button) with colour show number 2 run at speed number 4.



### “Stand-alone/master with external push button” mode

The function mode of “stand-alone/master with external push button” is similar to the previous one. In fact even in this case the device automatically reproduces an Easy Run show and runs it at the set speed. Moreover, the running of the show can be controlled by an external push button which must be connected to terminals PB and L.

The remote external push button operates as follows:

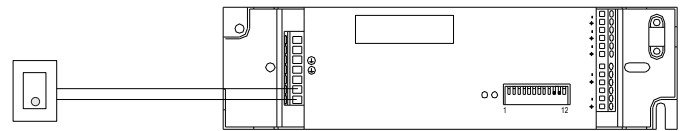
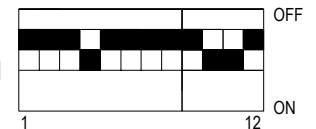
- A short pressure on the push button stops/starts the light show.
- A long pressure on the push button turns on/off the units connected to AR330500TC.

To set the “stand-alone/master with external push button” mode:

- Connect the external push button to terminals PB and L of the power supply terminal board
- Put dip-switches 10 and 11 into the ON position.

#### Example 1

Device in stand-alone/master mode with: sequence colour number 0, running speed number 4 and external push button enabled.



#### IMPORTANT WARNINGS

- **Make all connections with the device off.**
- **Class I unit: categorically needs grounding.**
- **Wiring and connections must be carried out by qualified personnel.**
- **Install the device in a well-ventilated place.**
- **The device generates heat when in function.**

Dip-switch decoding table for the DMX address (base channel)

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