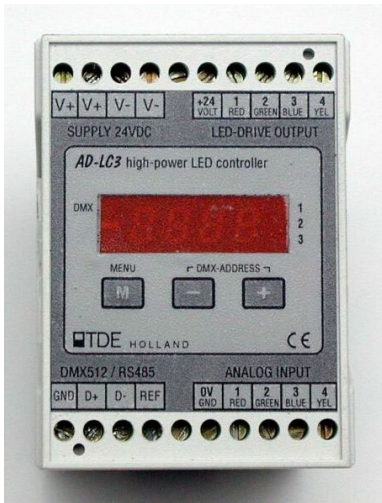


Universal DMX-512/1990 USITT RGB-LED controller



The **AD-LC3 RGB-LED controller** is a high power 3 or 4 channel LED-controller (driver) for direct control of voltage driven (RGB)LED's.

The total output power is enhanced to 320 Watt with a 24 Volt supply.

The AD-LC3 has fully protected outputs (Short-circuit, temperature, voltage and current protection).

The AD-LC3 has different digital inputs like DMX-512, RS485, RS232 and a analogue 4 channel 0...10V interface for easy connection to a A/V interface or external lighting console. TDE light-tech has designed special dedicated (wall-mounted) RGB-controllers for creating color-scenes and programs.

Please check: www.rgb-led.nl for information.

The AD-LC3 is MENU-controlled and has different operating modes. The AD-LC3 can be used as a stand-alone LED-driver with 16 build-in programs and controllable cross fade speed.

AD-LC3 Features:

The AD-LC3 RGB-LED controller has the following digital and analogue inputs:

4 x analogue 0..10V inputs	Controlled through a A/V interface or lighting console
DMX-512 USITT interface	Controlled through digital lighting consoles like the Light Easy
RS232/RS485 serial interface	Controlled through a A/V interface like Creston / AMX / Vantage

With the input interfaces you can control each output in color and intensity. The build-in programs and RGB-effect modes can be controlled external or as a stand alone controller. The standard programs are especially designed for easy controlling RGB-LED fixtures as used in cove and wall lighting.

AD-LC3 features:

- **Power supply 10 ... 24VDC**
- **4 high power LED-drive outputs** (maximum 320 Watt total output power)
- **0...100% brightness control through special PWM techniques**
- **All outputs are fully protected** (Short-circuit-, temperature-, voltage- and over current protection)
- **Menu controlled user interface** (With 3 menu-buttons and a 4-digit LED-display)
- **DMX-512 USITT input** (DMX-start address from 1 to 512)
- **4 analogue 0...10V control inputs** (for control through an A/V interface or analogue lighting desk, the analogue inputs can work together with the digital inputs (Analogue input has high priority))
- **RS485 / RS232 interface** (for interfacing A/V systems like Creston / AMX / Vantage)
- **Easy installation with DIN-rail mounting**
- **Dimensions: 75 x 55 x 110 mm (D x W x H)**

TDE light-tech has designed a complete range of modules in the same standard housing.

All the modules have equal user- and input interfaces but other output functionality.

AD-EVSA controller	4 channel 1...10V controllers for driving electronic Fluorescence and PL-ballasts
AD-DIM4 dimmer	4 channel digital electronic dimmer for controlling electronic transformers for low voltage Halogen lamps.

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The user interface has 3 control buttons and a 4-digit LED-display.
With the [Menu]-button you can select between the different functions of the AD-LC3.

- [MENU] Function select button
- [-] [-] control button
- [+] [+] control button

[MENU]

[Menu] With the [Menu]-button you can select the different functions of the AD-LC3.
*Press the [Menu]-button until the desired function is displayed on the display.
Control the different adjustments with the [+] and [-] buttons.*

<i>ADRES</i>	< A001 > < A512 >	Start-address	Adjustable between 1 and 512. The AD-LC3 uses 4 DMX-channels.
<i>FUNCTION</i>	< FU: 1 > < FU: 2 >	Standard mode RGB-effect mode	CH1 ... Ch4 = DIMMER [intensity 0...100%] CH1 = RGB COLOR [colour selection 1...16] CH2 = MASTER DIMMER [brightness 0...100%] CH3 = PROGRAM [program 1...16] CH4 = SPEED [speed 1 sec...256 min]
<i>SPEED</i>	< SP: 1 > < SP: 2 >	SPEED range-1 SPEED range-2	Cross-fade speed range-1: 1 ... 256 seconds Cross-fade speed range-2: 1 ... 256 minutes
<i>PROTOCOL</i>	< SE: 1 > < SE: 2 > < SE: 3 > < SE: 4 >	DMX-512 mode RS-232/485 mode RS-232/485 mode RS-232/485 mode	DMX-512 USITT/1990 protocol [512 channels] Serial protocol, RS232/485 [baud rate: 250.000] Serial protocol, RS232/485 [baud rate: 19.200] Serial protocol, RS232 /485 [baud rate: 9600]
<i>RESET</i>	< RS: 1 > < RS: 2 >	No function -- Reset mode selection	Reset the AD-LC3 to the factory settings. <i>Press and hold the [+] button for 4 seconds. When you then release the button the factory settings are restored into the AD-LC3 internal memory.</i>
<i>PROGRAM</i>	< P1: > Press and hold the [MENU] button for 3 seconds to activate the PROGRAM mode. < P1:00 > ... < P8:00 >	PROGRAM mode off PROGRAM 1 ... 8 [00 ... 99]	The STAND-ALONE PROGRAM mode disabled. Select a desired program with the [MENU] button. With the [+] and [-] buttons you can adjust the cross-fade speed between 1...256 sec. or min. [two speed ranges] <i>Press and hold the [MENU] button again to disable the stand-alone mode and switch to standard.</i>
<i>COLOR</i>	< C1: > Press and hold the [MENU] button for 3 seconds to activate the manual color mode. < C1:00 > t/m < C4:00 >	COLOR mode off COLOR output 1...4 [00 ... 99]	The manual color-mode is disabled. Select a color (output channel) with the [MENU] button With the [+] and [-] buttons you can adjust the intensity of each color (channel) between 0...100% <i>Press and hold the [MENU] button again to disable the color mode and switch to standard.</i>

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In the [MENU] : FUNCTION you can select between two different RGB-modes:

- FUNCTION - 1 < FU: 1 > The standard RGB-mode: Each input channel controls the intensity of each output channel.
- FUNCTION - 2 < FU: 2 > The RGB effect mode: Each input channel controls a certain effect channel. This function is explained in the following paragraph.

[MENU] : FUNCTION

< FU: 1 >	CH1	Startaddress	0...255	dimmer	intensity from 0...100%
	CH2	Startaddress + 1	0...255	dimmer	intensity from 0...100%
	CH3	Startaddress + 2	0...255	dimmer	intensity from 0...100%
	CH4	Startaddress + 3	0...255	dimmer	intensity from 0...100%
< FU: 2 >	CH1	Startaddress < COLOR >	0...15	BLACK	[RGB 000, 000, 000]
			16...31	BLACK	[RGB 000, 000, 000]
			32...47	DARK RED	[RGB 128, 000, 000]
			48...63	PRIMARY RED	[RGB 255, 000, 000]
			64...79	AMBER	[RGB 255, 128, 000]
			80...95	YELLOW	[RGB 255, 255, 000]
			96...111	LIGHT GREEN	[RGB 128, 255, 000]
			112...127	PRIMARY GREEN	[RGB 000, 255, 000]
			128...143	LIGHT CYAN	[RGB 000, 255, 128]
			144...159	CYAN	[RGB 000, 255, 255]
			160...175	LIGHT BLUE	[RGB 000, 128, 255]
			176...191	PRIMARY BLUE	[RGB 000, 000, 255]
			192...207	LAVENDEL	[RGB 128, 000, 255]
			208...223	MAGENTA	[RGB 255, 000, 255]
			224...239	LIGHT MAGENTA	[RGB 255, 128, 255]
			240...255	WHITE	[RGB 255, 255, 255]
	CH2	Startaddress + 1 < DIMMER >	0...255	CH1...4 master dimmer	Intensity from 0...100%
	CH3	Startaddress + 2 < PROGRAM >	0...15	COLORS selected with CH1 < COLOR >	Static
			16...31	ALL COLORS	Crossfade
			32...47	ALL COLORS + WHITE	Crossfade
			48...63	RED / MAGENTA / YELLOW	Crossfade
			64...79	RED / MAGENTA / YELLOW + WHITE	Crossfade
			80...95	GREEN / CYAN / YELLOW	Crossfade
			96...111	GREEN / CYAN / YELLOW + WHITE	Crossfade
112...127			BLUE / CYAN / MAGENTA	Crossfade	
128...143			BLUE / CYAN / MAGENTA + WHITE	Crossfade	
144...159			ALL COLORS	Static	
160...175			ALL COLORS + WHITE	Static	
176...191			RED / MAGENTA / YELLOW	Static	
192...207	GREEN / CYAN / YELLOW	Static			
208...223	BLUE / CYAN / MAGENTA	Static			
224...239	RAINBOW STROBE EFFECT	Strobe			
240...255	STROBE FUNCTION (Use this only by LED-lighting)	CH1 = < COLOR > CH2 = < DIMMER > CH4 = < SPEED >			
CH4	Startaddress + 3 < SPEED >	0...255	SPEED	Range - 1 [1 ... 256 seconds] Range - 2 [1 ... 256 minutes]	

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[MENU] : PROTOCOL

In the [MENU] : PROTOCOL you can select between different protocols of the digital serial interface.

- PROTOCOL - 1* < SE: 1 > The DMX-512 mode. This is the standard DMX-512 USITT protocol used in professional lighting business. You can set the DMX startaddress in the [MENU] : Address between 1 and 512.
More Information about this protocol on the website: www.dmx512.com
- PROTOCOL - 2* < SE: 2 > The RS485 / RS232 serial interface with a BAUDRATE of 250.000 baud. This serial interface uses a simple protocol as described here below.
- PROTOCOL - 3* < SE: 3 > RS485 / RS232 serial interface with a BAUDRATE of 19.200 baud. This serial interface uses a simple protocol as described here below.
- PROTOCOL - 4* < SE: 4 > RS485 / RS232 serial interface with a BAUDRATE of 9.600 baud. This serial interface uses a simple protocol as described here below.

The serial protocol for the serial modes < SE: 2 >, < SE: 3 > en < SE: 4 > is a very simple protocol which adapts easily to every application with a standard serial RS232 and RS485 computer interface. Interfacing to an Audio/Video control system like **Creston, AMX or Vantage** is easily done through this simple protocol. Also interfacing to a standard windows based computer (Visual C, Visual basic) is very easy.

The serial protocol consist of 4 bytes that has to be transmit in one package for each command. The package starts with a "Start of Transmission" STX-command and ends with a "End of Transmission" ETX-command. The serial protocol settings are: **19.200 or 9.600 baud, no parity, one stopbit and no handshaking.**

[MENU] - PROTOCOL description

The serial protocol:

BYTE – 1	< START >	Start of transmission	< 02 >	STX-command
BYTE – 2	< ADRES >	Address	< 0 ... 251 >	Startaddress -1
BYTE – 3	< DATA >	Data	< 0 ... 255 >	Intensity (0..100%)
BYTE – 4	< STOP >	Stop of transmission	< 03 >	ETX-command

The package will only be accepted by the AD-LC3 if the received address is in the range of the address setting of the AD-LC3.

For instance: If the startaddress of the AD-LC3 is set to <A009> then only packages with addresses <08>, <09>, <10> en <11> will be accepted (receptively CH1, CH2, CH3 en CH4).

The function of the DATA-byte depends what is selected in the [MENU] : FUNCTION. In this menu you can select between different RGB-modes.

- In the standard mode every input channel controls the intensity of the repectively output channel.
- In the RGB-effect mode every input channels controls an effect channel:
 - CH1 = < COLOR >
 - CH2 = < DIMMER >
 - CH3 = < PROGRAM >
 - CH4 = < SPEED >

More details about these functions you will find in the description of the [MENU] : FUNCTION.

More information: www.rgb-led.nl