

User manual

rev. 2.1

DALI232



DALI ↔ RS232 converter

ASCII protocol, Modbus RTU

MULTIMASTER support

Powered from RS232

DALI bus connection indication

DALI communication indication

Various length of DALI message support

galvanic isolation of DALI and RS232

Technical specification		
power supply DTR	DC 5 – 12	V
power consumption from DTR	5	mA
DALI current consumption (idle)	1,8	mA
wires cross section (DALI)	0,08 – 1,5	mm ²
galvanic isolation	5	kV
ingress protection rating	IP20	
ambient working temperature	0 ÷ 50	°C
storage temperature	-10 ÷ 70	°C
weight	20	g

Function

DALI232 supports two protocols. Simple **ASCII** protocol and **Modbus**. Both protocols are available at once.

ASCII protocol

Communication with DALI232 converter is done by serial line RS232 using simple ASCII protocol. This protocol is described in separate datasheet which is downloadable on www.foxtron.eu.

Through the agency of the converter DALI232 is control device able to send and receive messages on DALI bus. Except of standard messages user messages with various length can be sent and received.

DALI232 supports Multimaster communication (more master devices can communicate on DALI bus). Control device can send data at any time and collisions are solved by DALI232 converter.

DALI232 sends to control device all communication on DALI bus. Answers on DALI bus are sent to RS232 in one message together with appropriate query, even in case, that the query was sent by another device.

Control device is automatically informed about collisions on DALI bus (framing error) and other states (for example: short connection or main voltage on the DALI bus).

MODBUS

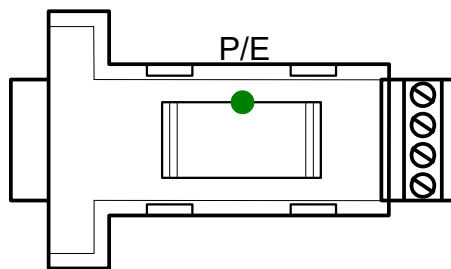
Using MODBUS RTU it is possible to command lights on the DALI bus. Controlled can be standard DALI ballasts and also extension for color management (RGB/RGBW) and color temperature (Tc) – DALI type 8.

To write values to DALI232, MODBUS function 16 (0x10) “Write multiple registers” is used. Choosing a register selects for which type of light will messages be send. Registers 1-162 are for standard DALI, 163-810 for DALI type 8 (color control).

By selecting a register can be determined message addressing on DALI. They can be sent as a Broadcast (to all units), to Group 0-15 or to specific address 0-63.

MODBUS register		DALI address	description		
1-2	1	Bcast	Standard DALI	Fade time (0-15)	
	2			Direct arc power control level (DAPc 0-254)	
3-34	3+x*2	Group x		Fade time (0-15)	
	4+x*2			Direct arc power control level (DAPc 0-254)	
35-162	35+x*2	Address x		Fade time (0-15)	
	36+x*2			Direct arc power control level (DAPc 0-254)	
163-170	163	Bcast		DALI type 8 RGBWAF (Color)	Fade time (0-15)
	164				Direct arc power control level (DAPc 0-254)
	165				Red (0-254)
	166				Green (0-254)
	167		Blue (0-254)		
	168		White (0-254)		
	169		Amber (0-254)		
	170		Freecolor (0-254)		
171-298	171+x*8	Group x	Fade time (0-15)		
	172+x*8		Direct arc power control level (DAPc 0-254)		
	173+x*8		Red (0-254)		
	174+x*8		Green (0-254)		
	175+x*8		Blue (0-254)		
	176+x*8		White (0-254)		
	177+x*8		Amber (0-254)		
	178+x*8		Freecolor (0-254)		
299-810	299+x*8	Address x	Fade time (0-15)		
	300+x*8		Direct arc power control level (DAPc 0-254)		
	301+x*8		Red (0-254)		
	302+x*8		Green (0-254)		
	303+x*8		Blue (0-254)		
	304+x*8		White (0-254)		
	305+x*8		Amber (0-254)		
	306+x*8		Freecolor (0-254)		
811-813	811	Bcast	DALI type 8 Tc (Color temperature)	Fade time (0-15)	
	812			Direct arc power control level (DAPc 0-254)	
	813			color temperature (Tc) = 1000000 / T[K]	
814-861	814+x*3	Group x		Fade time (0-15)	
	815+x*3			Direct arc power control level (DAPc 0-254)	
	816+x*3			color temperature (Tc) = 1000000 / T[K]	
862-1053	862+x*3	Address x		Fade time (0-15)	
	863+x*3			Direct arc power control level (DAPc 0-254)	
	864+x*3			color temperature (Tc) = 1000000 / T[K]	

LED indication			
P/E (Power/Error)	green	Permanent light	OK (connected power from serial line and DALI bus)
		Short blinking	Incoming data from DALI bus
		Short blushing	Sending data to DALI bus
	red	1 blink	Short-cut or disconnected DALI bus
		2 blinks	Mains voltage connected to the DALI bus
		3 blinks	Powered with power supply which is not designed to power DALI bus

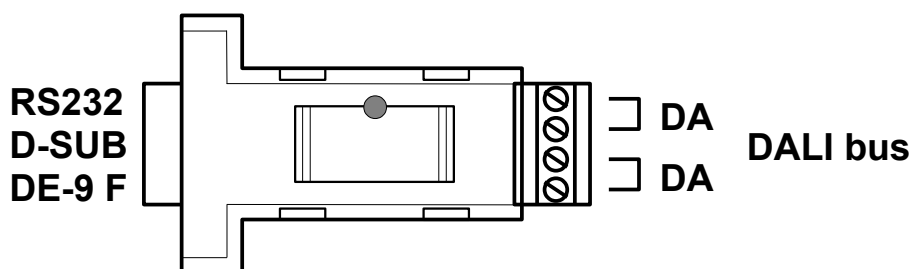


Power Supply

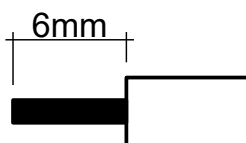
DALI232 converter is powered from serial COM port through DTR signal of control device. The DTR must be set by control device and must be connected to pin 4. of D-SUB connector.

If control device can't set DTR it is necessary to power converter from external power supply. (DC5-12V), connected between pin 4 (Vcc) and pin 5 (GND) of RS232 connector.

Terminal connection



wire preparation (DALI)



connector RS232 D-SUB DE-9 F pin description

Pin number	name	description
1	-	unused
2	TX	RS232 transmitted data
3	RX	RS232 received data
4	Vcc	converter power supply (signal DTR active, or external voltage 5-12VDC)
5	GND	RS232 signal ground
6	-	unused
7	-	unused
8	-	unused
9	-	unused

Dimensions (mm)

