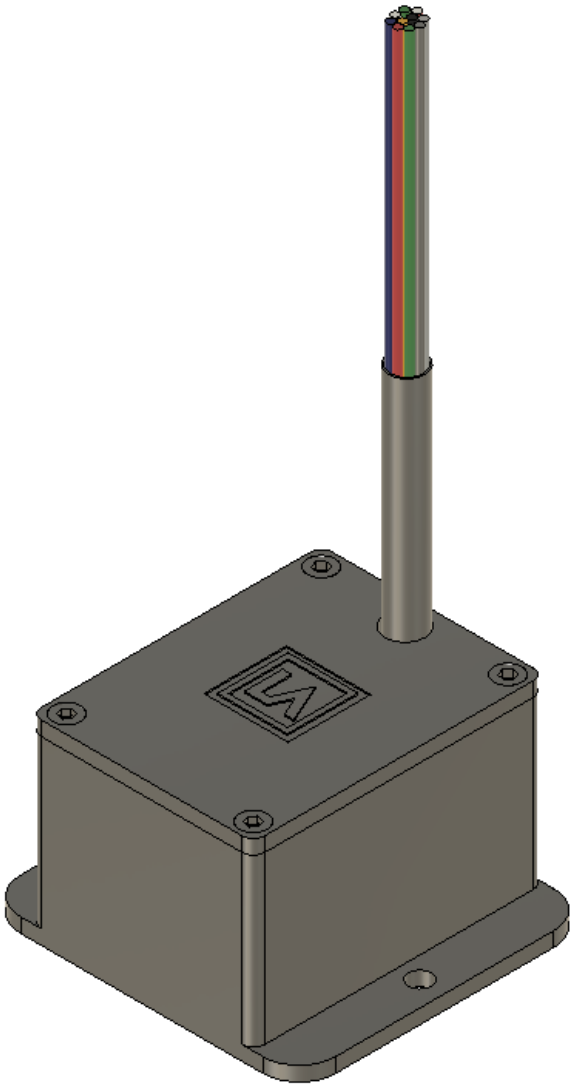
CT Relay Deck Power

The CTRDP single-channel controller is used for trimming ailerons or pich



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Product description:

CT Relay Deck is a device needed to convert the signal from the stick grips buttons to the signal for Ray Allen T2 or T3 servos. These are useful for trimming tab systems on UL airplanes. With this equipment, we achieve easier control of the aircraft, because after using this device, it is no longer necessary to exert such a force on the steering. The device processes the signal from the electric buttons on the stick grip of the aircraft and according to the evaluation of the signal turns on, off and change the way rotation of the appropriate servo. The servo runs if the button is pressed. CTRD is only single channel version (for 2 buttons on the stick grip). If we need to control aileron and pitch servos together, we need to install the CTRDP product twice. The device may also be called a Single Pole Single Throw (SPST) to Double Pole Double Throw (DPDT) signal converter. Simply put, a simple button on input changing the state polarity of output. To check the status of ailerons and pitch trim, it is possible to use a trim (position) indicator, which is connected to the potentiometer output of the controlled servo. CTRDP units are available in 12V and 24V versions. This CTRDP version can withstand large current peaks than CTRD2 and CTRD4.

When installing, follow the wiring diagram, see. fig. 1 and test properly after installation. If the servo reacts in the opposite direction to the intended direction, reverse the polarity of the motor of the respective servo. If the trim indicator shows a deviation in the opposite direction to that intended, change the polarity of the end measuring wires on the trim indicator. If is not used servo speed control unit, connect yellow wire to red wire. The +VCC_SERVO signal (yellow wire) can also be connected to another source (5..30V) that has a common GND.

Electrical parameters:

Parameter	*min*	*Typ.*	*max*	*Unit*	*note*
Supply voltage 12V/24V	9,5/19,5	12/24	15/28	VDC	+VCC – red wire
Power consumption 12V/24V	0	350	1200	mW	according to the size of the supply voltage and the number of switched relays
Separate servo power supply		YES		-	Common GND. Normally, the power supply for the servo and the control electronics is common. +VCC_SERVO – yellow wire
Switching voltage 12V/24V	5	12/24	30	VDC	+VCC_SERVO – yellow wire
Switching current	0,1	-	4	A	Resistive load
Switching power 12V/24V	0,5		120	W	
Min. mechanical life of switch	10^7			-	No load
Min. electrical life of switch	10^5			-	
Recommended fuse protection			8	A	
Channel count		1		-	
Reverse polarity protection		YES		-	
Relay protection		YES		-	Spike on primary side relay

Mechanical dimension:

Parameter	*value*	*Unit*	*note*
Width	41,0	mm	*see. fig. 2, 3 and 5 product size drawing
Dept	44,5	mm	
High	27,5	mm	
Mounting hole	M3	mm	
Weight	49	g	
Cable dimension	0,34	mm^2	22AWG
Cable length	50	cm	

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Wire legend:

Signal	Recommended connector type (faston)	Wire color
GND	male	**BLACK**
SERVO_ 2	female	**GREEN**
SERVO _1	female	**BROWN**
STICK_GRIP_2	male	**BLUE**
STICK_GRIP _1	male	**PINK** / **ORANGE**
+VCC	male	**RED**
+VCC_SERVO	male	**YELLOW**
note	The circuit is activated after connected controll signal (STICK) to ground. *If the servo speed controller is not used, connect the red and yellow wires together (+VCC and +VCC_SERVO)* *Use for **AILERON OR PITCH** trim*	

INPUT/OUTPUT truth table

	INPUT				OUTPUT	
Name input/output Wire color	**STICK_GRIP _1**	**STICK_GRIP _2**	**+VCC (control electronics power supply)**	**+VCC_SERVO (servo power supply)**	**SERVO_1**	**SERVO_2**
State	**NC**	**NC**	**VCC**	**VCC_SERVO**	**GND**	**GND**
	GND	**NC**	**VCC**	**VCC_SERVO**	**VCC_SERVO**	**GND**
	NC	**GND**	**VCC**	**VCC_SERVO**	**GND**	**VCC_SERVO**
	GND	**GND**	**VCC**	**VCC_SERVO**	**VCC_SERVO**	**VCC_SERVO**
	X	**X**	**NC**	**X**	**GND**	**GND**
	Y	**Y**	**Y**	**Y**	**Y**	**Y**
Note	NC – not connected VCC – connected to supply voltage + GND – grounded (connected to supply voltage -) X – no matter the status Y – there are other options (not important for our use) The table is valid only if the GND input is connected to the negative pole of the battery					

Operating conditions:

parameter	*value*	*Unit*	*note*
Working temperature	-25 ÷ 55	°C	
Humidity	35 ÷ 85 %	RH	
Atmospheric pressure	800 ÷ 1100	hPa	
IP	IP20	-	
Type of installation	On the surface / into the hole	-	screw M3
Working position	any	-	

Installation schema:

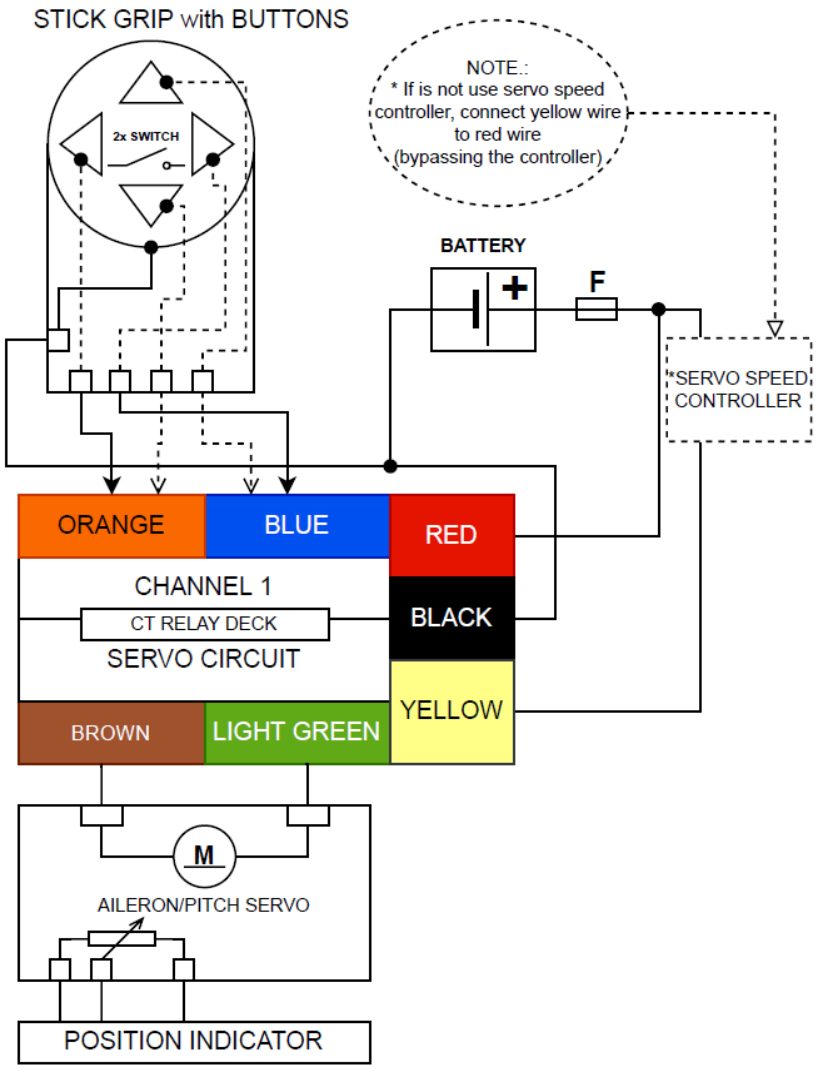

Fig. 1 Connection drawing

Product dimension:

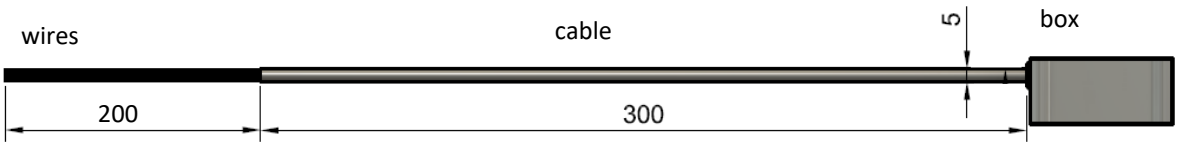

Fig. 2 Output cable length (mm)

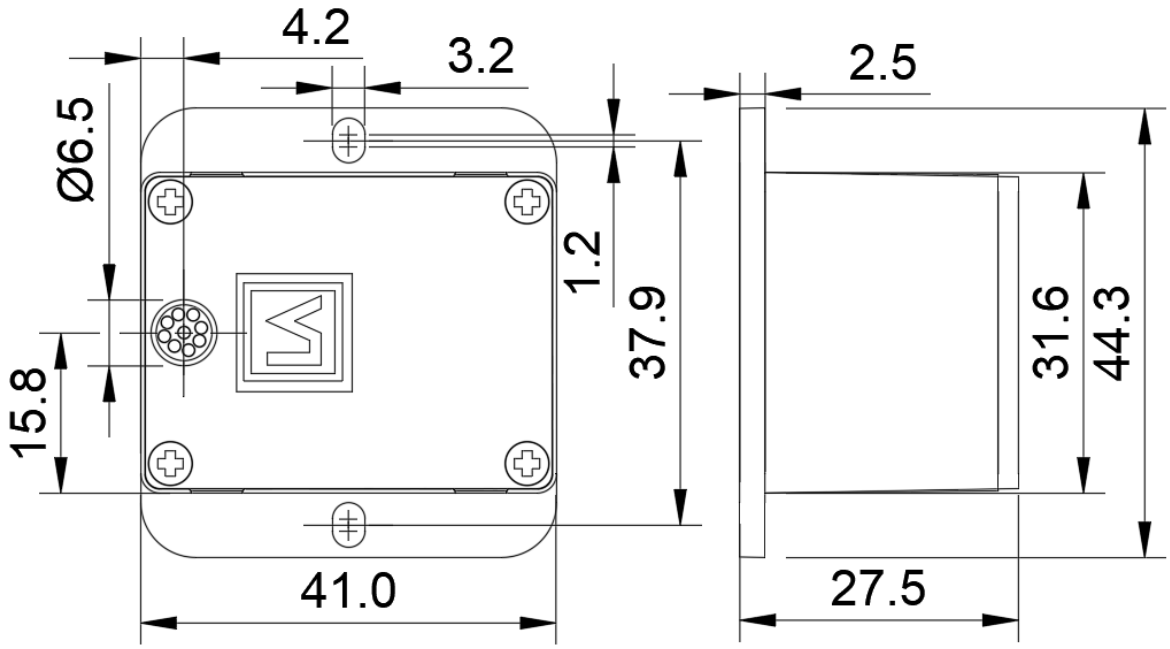

Fig. 3 Box dimension (mm)

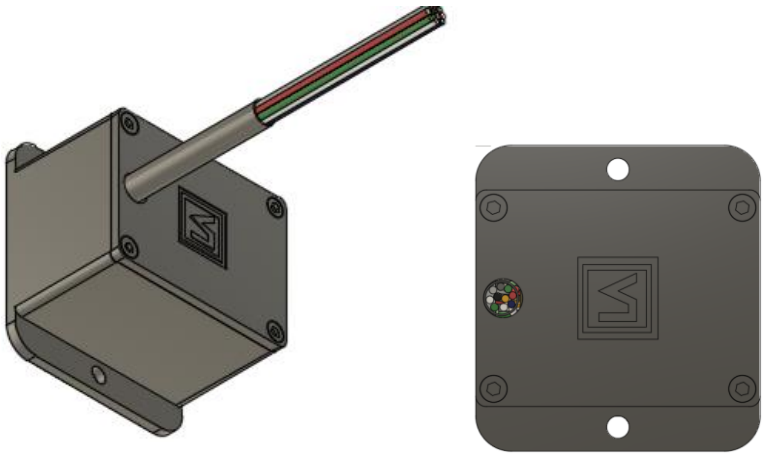

Fig. 4 CTRDP box view

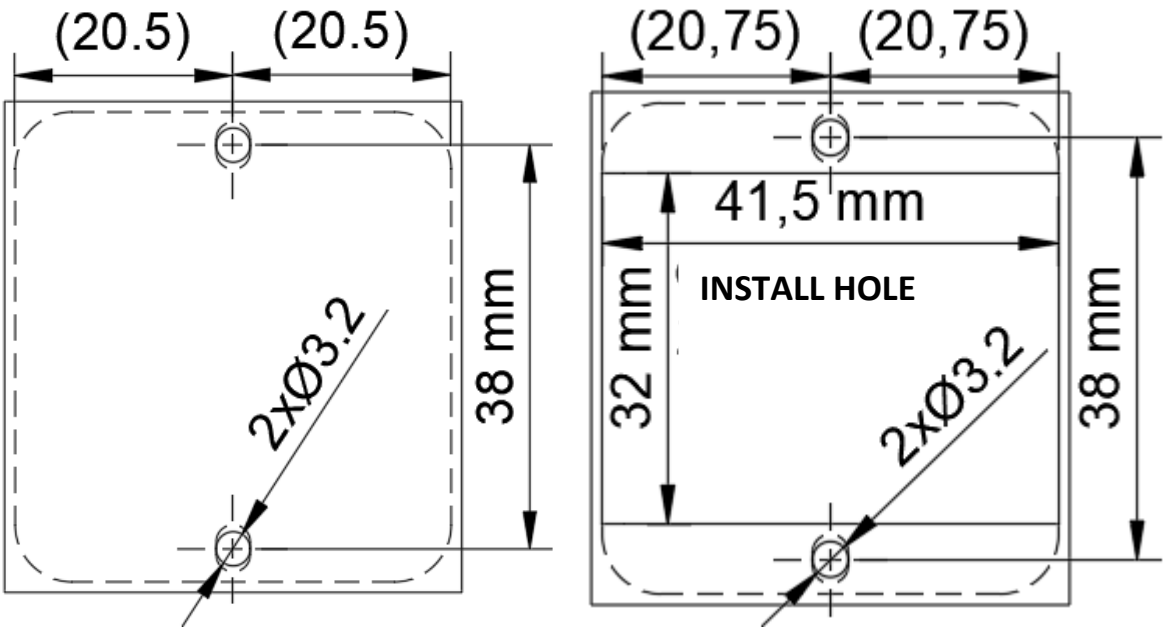

Fig. 6 Installation holes a) on the surface b) recessed into the hole

Important notes and warnings

Thank you for purchasing **LE RFID 125K**. For a comfortable and safe use of this product, please pay attention to THE ENTIRE MANUAL, especially the notes and warnings below.

- Although the **LE RFID 125K** unit has been thoroughly tested to ensure maximum safety in all conceivable situations, THE RIGHT FUNCTIONALITY DEPENDS ON THE RIGHT INSTALLATION AND SETTINGS.
- Therefore, it is **NECESSARY to READ CAREFULLY and UNDERSTAND THIS MANUAL COMPLETELY**.
- Keep this manual printed in an airplane for cases of emergency or change of ownership.
- **THIS PRODUCT IS NOT APPROVED FOR INSTALLATION IN CERTIFIED AIRPLANES**.
- The pilot MUST UNDERSTAND the control of this product before the first flight. DO NOT use the product unless you are sure how it works!
- Do not allow unauthorized persons to handle the installed product.
- After installing the product, before the first flight, turn on ALL possible sources of electromagnetic interference on board the aircraft and ensure that the instrument is functioning properly.
- Use of the device in conflict with this manual, with bad wiring, outside the allowed operating conditions, etc., may cause the device to malfunction or damage and endanger flight safety.
- If the product repeatedly indicates an error, do not use it and turn off the power!
- AVOID contact with liquids and chemicals
- Before installation, check the mechanical integrity of the device and its accessories
- DO NOT disassemble the device!
- After installation, carefully check the functionality of the device and its installation
- The responsibility for the installation is entire with the installer.

- Responsibility for performing control actions based on information indicated by the product is full of the operator (pilot). The operator must be able to evaluate an incorrect indication even if the product does not indicate an error.
- Ensure regular maintenance of the aircraft's main battery
- If you do not agree to the notes and warnings above, do not use this product.

Company LAMBERT AERODEVICES s.r.o reserves the right to change or improve the product or manual without prior or subsequent notice.

Document history:

datum	*verze*	*popis změny*	*autor*
19.08.2022	0	Create the document, LA	NEPOR
10.10.2022	1	parameter update, input/output truth table	NEPOR
2.12.2022	2	Update box dimension	NEPOR

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