

DEC-8LR-4 is a device that integrates an 868 MHz radiomodem with LoRa™ modulation and it's able to ensure point to point long range communications, high immunity against interferences, high sensitivity and reduced current consumption.

This device, in combination with AUREL's ENC-8LR encoder or with XTR-8LR-4ZN hand held transmitter, is able to drive remote loads, even for long distances (8 Km line of sight), for example in those applications like irrigation systems, alarm systems.

Connections (n. 1 contact from the left part of the above picture)

Contacts	Description
1	CH4
2	CH4
3	CH3
4	CH3
5	CH2
6	CH2
7	CH1
8	CH1
9	-V
10	+V

The technical features can be change without forecast. AUR°EL S.p.A does not assume any responsibility on damages due the improper use of the device

How It Works

DEC-8LR-4 device, in order to ensure < 1 mA of current consumption, it automatically manages an On-Off cycling with the dedicated duty-cycle. When the device is in the reception, it checks a valid transmission coming in and, in positive case, it remains in the same status waiting the decoding ends.

DEC-8LR-4 has to always be matched with one or more ENC-8LR or XTR-8LR-4ZN transmitters through a learning procedure described below.

Decoder can learn up to 48 encoders.

When a valid data packet has been transmitted from a paired encoder, with a counter (see encoder user manual) greater than the last received (with a maximum window of 512), the related output becomes active on the decoder and the LED on board of the module shows it with a blink.

Monostable or bistable setting through a dip switch :

SET 1	SET 2	OUT1	OUT2	OUT3	OUT4
OFF	OFF	MONO	MONO	MONO	MONO
OFF	ON	MONO	MONO	BI	BI
ON	OFF	MONO 1/2 sec	MONO 1/2 sec	BI	BI
ON	ON	BI	BI	BI	BI

MONO = monostable output: output is active until the input on the encoder is active.

BI = bistable output: each activation of the input on the encoder changes the output status.

MONO 1/ 2 Sec = monostable output: output is active per 1/2 second from when input has been released on the encoder side.

In order to limit the current consumption is possible to switch off POWER ON led setting the jumper OFF.

As far as further details about outputs setting management and also to the encoding, check Aurel XTR-8LR-DEC user manual (integrated module in the device).

Automatic learning procedure

- 1) Pushing and releasing the LEARN button located on the XTR-8LR-DEC module.
- 2) LED on RF module blinks quickly for 10 seconds: during this time, every activation of an input will be learned from the decoder. The positive learning of the encoder will be indicated from a switching-on of the LED for 1 second.
- 3) Outputs are automatically matched with Encoder's buttons (e.g. button 1 with output 1, button 2 with output two).

Manual learning procedure (available only with monostable outputs, SET1 = SET2 = OFF)

- 1) Pushing and releasing the LEARN button located on the module, it enters into learning procedure.
- 2) LED blinks quickly for 10 seconds.
- 3) Push again LEARN button in this time: LED will switch on permanently.
- 4) Push again LEARN button for the selection of OUT1 output (LED will blink one time for confirmation), push again the LEARN button for the selection of OUT2 (LED will blink twice) and so on, up to the desired output.

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- 5) Once it has been identified the desired output, activate the input of the encoder to match, then LED will blink a number of time correspondent to the number of the output.
- 6) From now, the selected output works in monostable mode.
- 7) Repeat the same procedure for the learning of a new encoder or a new input of the same encoder.

Memory erasing procedure

- 1) Pushing and releasing the LEARN button located on the module, it enters into learning procedure.
- 2) LED blinks quickly for 10 seconds: during this time push again the button for around 5 seconds, when LED stops to blink.
- 3) Afterwards release the button and check the 5 blinks of LED to show the occurred memory erasing.
- 4) After device reset no encoder will be recognized and all outputs will be set according to the selected mode with SET1 and SET2 lines.

Technical features

	Min.	Typ.	Max.	Unit
AC/DC Levels				
DC	9	12	26	V
AC	12	24	26	V
Average current consumption in power down cycle with all relays open		0.8	1	mA
Current consumption in RF transmission with all relays open		45		mA
Max current relay			5A@220VAC 5A@30VDC	
Frequency	868,30			MHz
E.R.P.		13	14	dBm
Modulation	LORA™			
Sensitivity		-126		dBm
Working Temperature	-20		+70	°C
Storage temperature	-40		+100	°C

Note: The relay current consumption changes depending on the power supply (e.g. 9mA with VDC = 24V and 24mA with VDC = 9V).

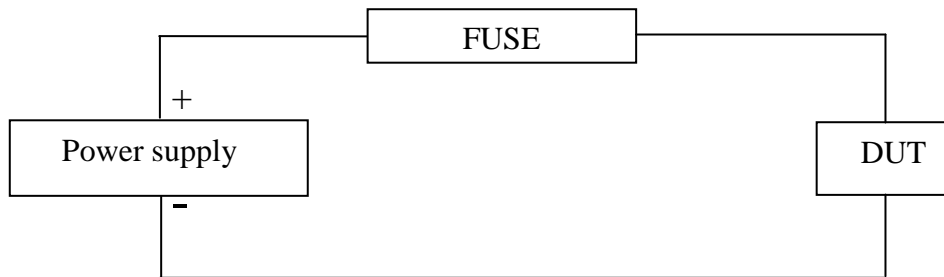
Reference Rules

The device is complaint with the following normative:

- EN 62479
- EN 60950-1
- EN 301 489-3
- EN 300 220-2 Receiver Class: 2

Concerning the EN 60950-1 normative , for the electrical safety, the device is considered a subset. It's under installer's responsibility embeds the device as component ensuring the safety of the finished product. The device is foreseen electrical connected to SELV circuits and it must be supplied with a power source (battery or power supply) that ensures SELV voltages (Extra Low Voltage systems) compliants with EN 60950-1 and foresees of short-circuits protection .

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Example of short circuits protection

Furthermore EN 60950-1 requests that cells or portable sealed secondaries batteries (different from the button type), containing electrolytic alkaline or a not acid type have to be compliant with IEC 62133 normative.

DECLARATION OF CONFORMITY

AUREL spa, the manufacturer , declares that DEC-8LR-4 device is compliant with 2014/53/UE directive.

The UE conformity complete text is available on the following link:

<http://www.aurelwireless.com/declaration-of-conformity/>

The device works at 868MHz (868 – 868.6 MHz bandwidth) with 10 dBm of E.R.P..

The device is a "Class 1" radio equipment as defined in article 1 (1) of the European Commission Decision No. 2000/299 / EC of 06/04/2000. Class 1 Radio Equipments may be placed on the market and used without restriction in all EU member states.

Recommendation CEPT 70-03

The device operates in a harmonized frequency band and therefore, in order to comply with current regulations, the device must be used on the time scale with a maximum duty-cycle time of 1% (equivalent to 36 seconds usage on 60 minutes).

WEEE Marking

	Once the product life-span has expired, the product must be disposed of in a different way from other wastes. The user must to put the equipment at the collection points for electronic and electrical waste. Illegal disposing of this product, is punishable by law and will be dealt with according to the laws of the individual member nation of EU.
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