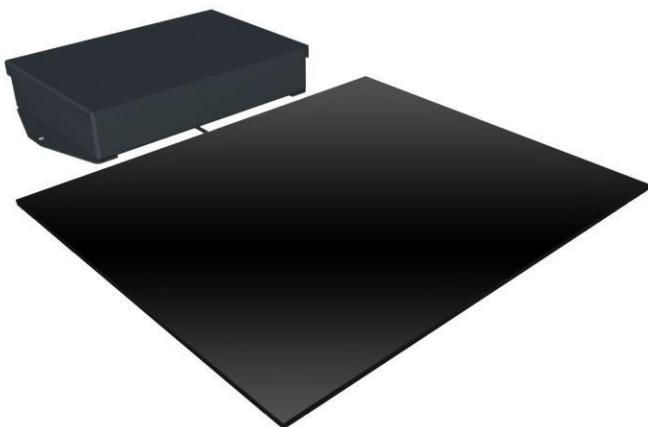


RF DEACTIVATOR

USER'S MANUAL

HISTORY OF REVISIONS AND REPAIRS:

01/2014 REV.A (HW:N:09-000-005, REV.4)



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1. BASIC INFORMATION

USE: The deactivator is determinate for the deactivation the RF sticker labels in frequency range $8.2 \text{ MHz} \pm 3.625 \%$. The deactivator can also detect deactivation less hard tags in the above-mentioned frequency range.

The deactivator works with all kinds of hard tags and sticker labels in the market for 8.2 MHz

The synchronization between deactivators and EAS system is the way for the elimination of bad influence between the deactivators and EAS system. This bad influence usually comes out as EAS system sensitivity decreasing or false alarms.

2. BASIC DEVICE DESCRIPTION

1. Embedded 4 LEDs indicate the following deactivator state:

- The deactivator unit is powered
- Internal synchronization
- LF synchronization led to the deactivator unit
- The detection of sticker label or tag

2. Maximum deactivation height is up to 40 cm.



NOTE: Maximum output power of the deactivator, 40x40 mm sticker labels.

3. Maximum detection height is up to 40 cm.

4. Sound indicator of the detection hard tag or sticker label with possibility of volume adjustment.

5. The deactivator unit works in only one mode. Detection with deactivation.

3. DEACTIVATOR PARAMETERS AND THEIR MUTUAL INTERACTIONS

3.1 SENSING AND DEACTIVATING POWER

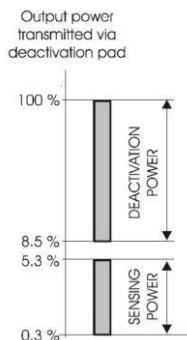
The deactivator needs two output power levels for its operation.

RX Sensitivity Level - Is used for the detection of sticker labels and tags. The bigger this power is the higher detection height is reached, but the higher the probability is, that the sticker label is deactivated before its detection. The level of sensing output power (RX) is found experimentally by reaching acceptable detection height and probability of successful detection by modification trimmer RX PWR trimmer. The value of this parameter is set at 50 %.



NOTE: All Power settings MUST be left at default settings in USA. USA versions do not allow for power adjustments

Deactivation output power - Is used for deactivation of sticker labels. This level is set at manufacture. Bad influence usually comes out as EAS system sensitivity decreasing or false alarms making. It is necessary to perform proper synchronization between EAS system and the deactivator.



Pic. 1 - The comparison - possible levels of 'sensing power' and 'deactivation power'

3.2 DEACTIVATOR OPERATING MODES

The deactivator unit can only work in 1 mode.

MODE1 - deactivation with detection - The deactivator emits 'deactivation output power' pulses, which are defined by TX PWR trimmer. The response after deactivation pulse is analyzed in order to look for the presence of sticker label or tag inside detection area (above or under deactivation pad).

4. CONFIGURATION OF DEACTIVATOR'S PARAMETERS

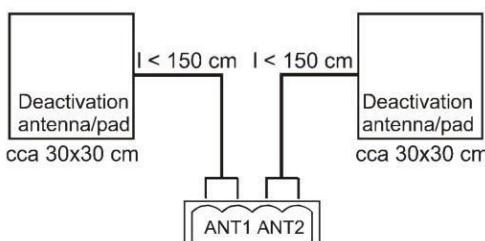
4.1 THE USAGE OF ONE OR TWO DEACTIVATOR PADS

If it is intended the usage of the only one deactivation antenna (deactivation pad) it makes no difference, if it is connected to the terminal ANT1 or ANT2. We recommend keeping recommended dimensions of the deactivation antenna; it fits 90 % of installations.

The usage of two deactivation antennas/pads can be requested in some cases. It can happen mainly in three following cases:

1. It is requested to have two deactivation antennas/pads, which are not distant more than approximately 2-3 m (for example one can be normal deactivation pad and the second one can be embedded into bar code reader).
2. One deactivation antenna/pad is required, but bigger deactivation field is requested than one deactivation pad can give.

Both of deactivation antennas should be connected to terminals ANT1 and ANT2 (for example first deactivation antenna can be connected to the terminal ANT1 and second one to the terminal ANT2). Both of antennas will work the same way as per settings of the operational mode (MODE1, MODE2, MODE3 or MODE4).



Pic. 2 - Recommended dimension of deactivation antennas and their connection to the deactivator

4.2 SETTINGS OF THE DEACTIVATION POWER

The deactivator deactivation power is determined by settings of the TX PWR trimmer. The value of this parameter determines the height of the deactivation field. This level should be chosen the way to assure the reliable sticker labels deactivation. There is general rule valid, that 50 % level of output power is sufficient for the most sticker labels. The value of this parameter is set at 50 %; setting beyond this level is not allowed by the manufacturer. This setting cannot be changed in USA models.

4.3 SETTINGS OF DEACTIVATION RX SENSITIVITY

The deactivator features having the adjustable level of sensing power RX PWR (the power, what is needed for the detection of the sticker label without its deactivation). The correct setting of this parameter is very important for the sticker label detection. Too small sensing output power will give small detection height, but on the other hand, too big output power can deactivate the sticker label without its detection. The correct level of this parameter varies on the sticker label brand. The value is set 50%. This setting cannot be changed in USA models

4.4 SETTINGS OF THE STEPPING FREQUENCY RANGE

The deactivator is factory set to detect the standard sticker labels. Stepping frequency range will assure the detection of sticker labels, which are out of the standard operational frequency range of the RF EAS system. Bigger sweeping frequency range will mean less detection height on the other hand and vice versa. The value of this parameter is set at 50 % fixed; setting beyond this level is not allowed by the manufacturer and is fixed for USA models.

5. INSTALLATION

There are several simple and essential rules mentioned, which keeping will assure very good parameters of the deactivation.

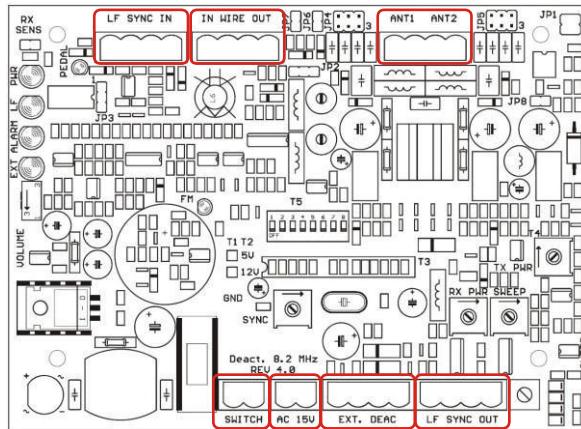
- Don't install deactivation antennas/pads to the near proximity of metal objects. There should be no metal object under the deactivation antenna/pad closer than from 3 to 4 cm. There should be no metal object next to the deactivation antenna/pad closer than from 5 to 10 cm.
- Don't install the deactivation antennas/pads to the close proximity of the other electronic devices.
- Don't install wire between the deactivator unit and the deactivation pad/antenna along with the others cables.
- Pay your utmost attention to install deactivators as far as possible from the RF EAS system. The particular minimum distance depends mainly on the quality of used RF EAS system.

5.1 FAULTS CLEARING

Fault description	Recommended solution
No function, LED PWR is OFF	Check power supply, terminals, cabling
No function, LED PWR is ON	Check the connection of deactivation antenna/pad, check the "pedal switch" feature
No function, LED EXT flashes	Check the external synchronization signal in the deactivator input (terminals IN WIRE OUT, LF SYNC IN), test point T1, DIP6, DIP7
No sticker labels and hard tags detection	Check operational mode settings (MODE1-MODE4), check the RX PWR level
Acoustic detection is not working	Check the VOLUME settings
Some sticker labels are detected, but some are not detected	Check sweeping (SWEEP) and detection output power (RX PWR)
Some sticker labels are deactivated during their detection	Decrease detection output power (RX PWR)
Some sticker labels are not deactivated	Check (increase) deactivation output power TX PWR
False sticker labels detection of the deactivator	Check and eliminate relevant resonances, change the operational mode, switch off the acoustic indication of the detection
Decreased sensitivity of the RF EAS system	Check the synchronization (SYNC, LED FM), decrease TX PWR, check the RF EAS system settings, change operational mode
False alarms of the RF EAS system	Check the synchronization (SYNC, LED FM), decrease TX PWR, check the RF EAS system settings, change operational mode

6. ELECTRONIC BOARD DESCRIPTION

6.1 TERMINAL DESCRIPTION



Pic. 3 - Location of terminals on the board.

SWITCH - The deactivator switch.

AC 15V - Power supply terminal (AC 15V/11VA).

EXT.DEAC - Reserved for the future board expansion.

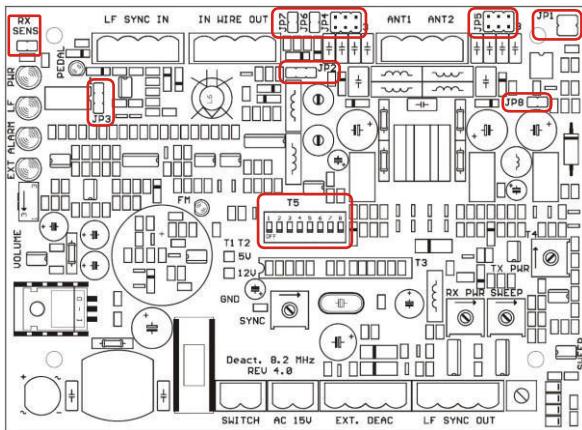
LF SYNC OUT – Not used in USA

ANT1 ANT2 - Deactivation antennas terminal.

IN WIRE OUT – Not used in USA

LF SYNC IN – Not used in USA

6.2 JUMPERS AND DIP SWITCH DESCRIPTION



Pic. 4 - Location of jumpers and DIPs on the board.

JP1 - The free place for spare jumpers.

JP2 - Source of high frequency synchronization.

JP3 - Delay between received trigger signal and the transmitted one – in mode of low frequency mode.(Not USED IN USA MODEL)

JP4, JP5 - In order to be able to put antenna on resonance, the effects of loop geometries and different cable lengths can be composed to certain degree. By jumpers JP4, JP5 can be done the matching deactivation antenna to deactivator unit.

JP6, JP7 - Terminating resistors to the high frequency input terminal IN WIRE. These resistors should connected to this terminal if there is nothing connected to the (WIRE OUT terminal).

JP8 - Reserved for the future usage – the expansion deactivator unit.

RX SENS - The sensitivity of the deactivator receiver. Higher receiver sensitivity brings higher detection height.

DIP 1,2 - Deactivator operational modes.

DIP 3 - Way of deactivator synchronization. (NOT USED IN USA MODEL LEAVE IN OFF MODE)

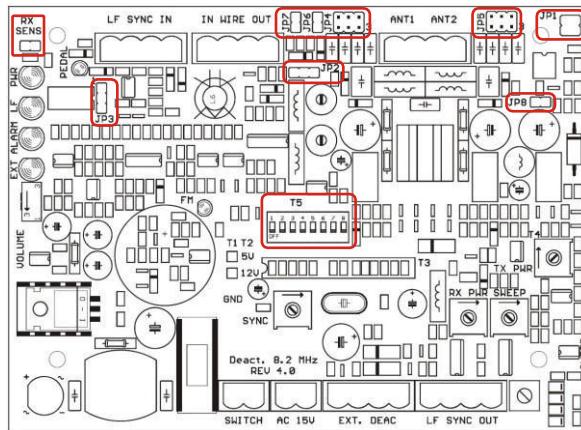
DIP 4, DIP 5 - Time between particular deactivation pulses in the internal synchronization mode.

DIP 6 - The feature „pedal“ is enabled/disabled.

DIP 7 - Way of the synchronization.

DIP 8 - Sensitivity of the hard tags and sticker labels recognition.

6.3 TRIMMERS DESCRIPTION



Pic. 5 - Location of trimmers on the board.

TX PWR - Deactivation output power (set at 50%).

RX PWR - Sensing output power (set at 50%).

Stepping - The range of sweeping is set from the production fixed at 50%.

SYNC - The time between the request for deactivation and transmission of detection/deactivation pulse and the settings of deactivation output power TX PWR and RX PWR) The purpose of trimmer is to put the detection/deactivation pulse into time, where the EAS system doesn't analyze the tag and sticker label response and therefore it is resistant to deactivator transmissions (time multiplex principle). **VOLUME** - The volume of buzzer – the indication of the hard tag or sticker label detection.

6.4 LEDS DESCRIPTION

PWR - Power supply LED.

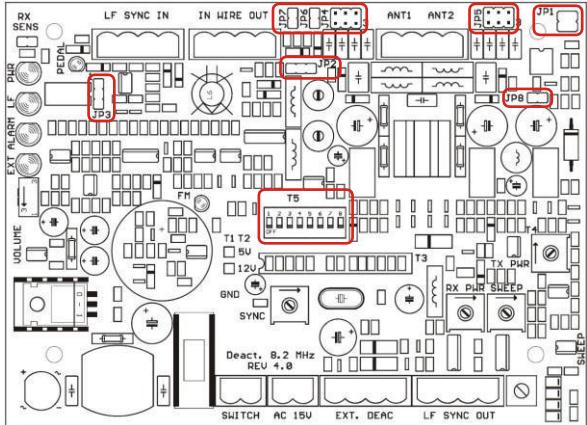
LF - Signal on low frequency synchronization terminal LF SYNCIN.

EXT - Indication of the internal synchronization.

ALARM - Alarm LED.

PEDAL - Pedal switch LED.

FM - The indicator, if currently received and FM demodulated signal is good enough for proper external synchronization.



Pic. 6 - Location of LEDs on the board.

7. DECLARATION

7.1 EQUIPMENT MODIFICATION CAUTION

Equipment changes or modifications not expressly approved by manufacturer, the party responsible for FCC &/or CE compliance, could void the user's authority to operate the equipment and could create a hazardous condition.

7.2 FCC COMPLIANCE

"This equipment has been tested and found to comply with the limits for Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction's manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause interference in which case the user will be required to correct the interference at his own expense. The user is cautioned that changes and modifications made to the equipment without approval of the manufacturer could void the user's authority to operate this equipment."