

GENERAL INFORMATION

Radio WL card enables wireless managing of DTM System's device which is equipped with the special connector to the card. The connection is held via the wireless Wi-Fi network which is made available by the user. Manufactured WL card is delivered with the transitional aerial wire and 3 dBi aerial.

TECHNICAL DATA:

- Frequency: 2.412 to 2.462 GHz;
- Modulation: 802.11b Compatibility: DSSS (CCK-11, CCK-5.5, DQPSK-2, DBPSK-1) 802.11g: OFDM;
- Wireless security WEP, WPA-PSK (TKIP), WPA2-PSK (AES);
- Power consumption: 700mW;
- Cooperation with DTM System devices equipped with WL cards connector;
- Possibility of easy configuration of Wi-Fi connection – WPS function;
- Card Power supply by WL connector;
- Operational temperature from -20°C to +55°C;
- WL card size [mm]: 68x26x6;
- Rod omnidirectional aerial finished with the RP-SMA plug;
- Transitional aerial wire finished with the U.FL female plug and RP-SMA male plug.

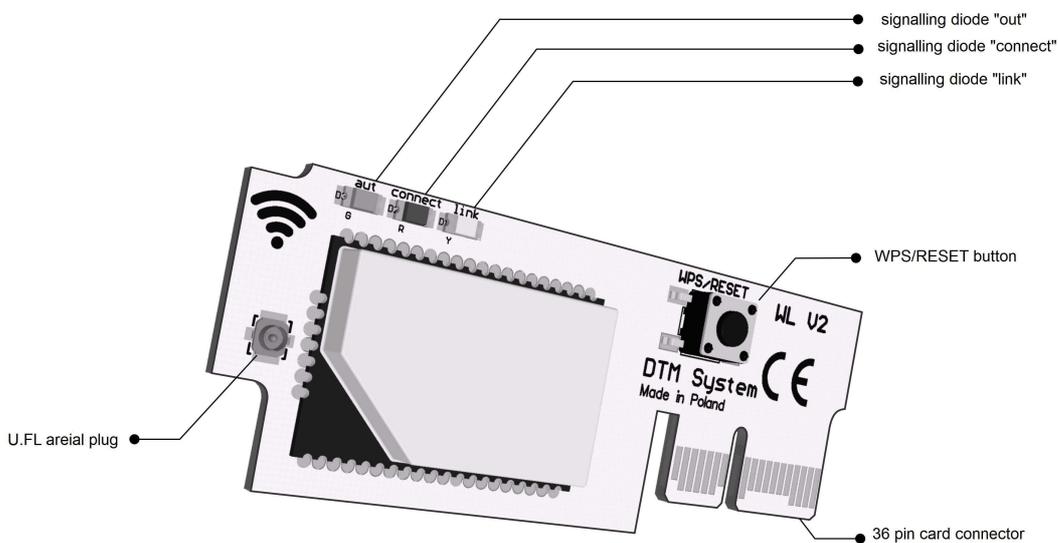
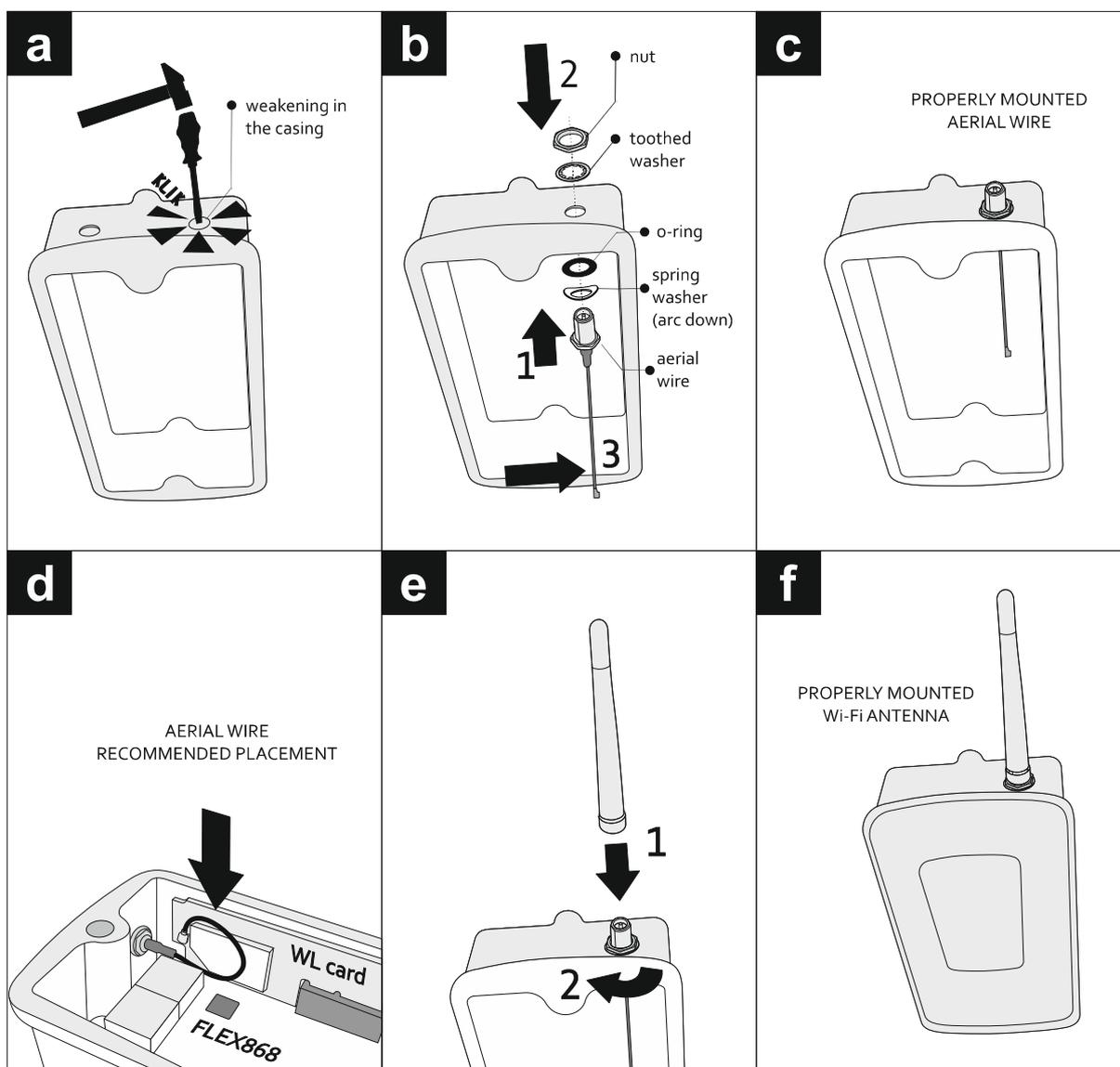


Fig. 1 WL card with the description of functional elements.

1. WL card installation in FLEX 868 receiver

WL card installation must be preceded by the installation of the transitional aerial wire in the casing of the receiver. The correct assembly should be conducted according to the following points.

- **Step 1:** Dismantle the receiver board from the casing.
- **Step 2:** Prepare the hole in the casing. Break out (e.g. with screwdriver) weakening in the upper right corner (fig. 2 a).
- **Step 3:** Transfer the aerial wire through the hole with the drawn pad and o-ring (2b-1 fig.).
- **Step 4:** Draw the toothed washer and wind the nut on the plug sticking out of the casing of the aerial (2b-2 fig.).
- **Step 5:** Direct the connector to the right at the end of the aerial wire (2b-3 fig.).
- **Step 6:** Screw the clamp nut in properly on the aerial plug with power that guarantees long-lasting fastening (fig. 2 c). If it is done with not enough strength it can cause casing leak and wrong position of the aerial wire.
- **Step 7:** Fasten the receiver board in the casing.
- **Step 8:** Stick the end of the transitional aerial wire to the U.FL aerial plug on the WL card (fig. 1), paying attention to correct arrangement of the aerial wire (fig. 2 d).
- **Step 9:** Install WL card on the FLEX868 receiver board in 36 pin plug with the description "Wi-Fi" (fig. 3).
- **Step 10:** Install the aerial (fig. 2e).



Rys. 2 WL card installation in the FLEX868 receiver.



All works associated with connecting, installing and removing additional modules should be performed with disconnected power supply.

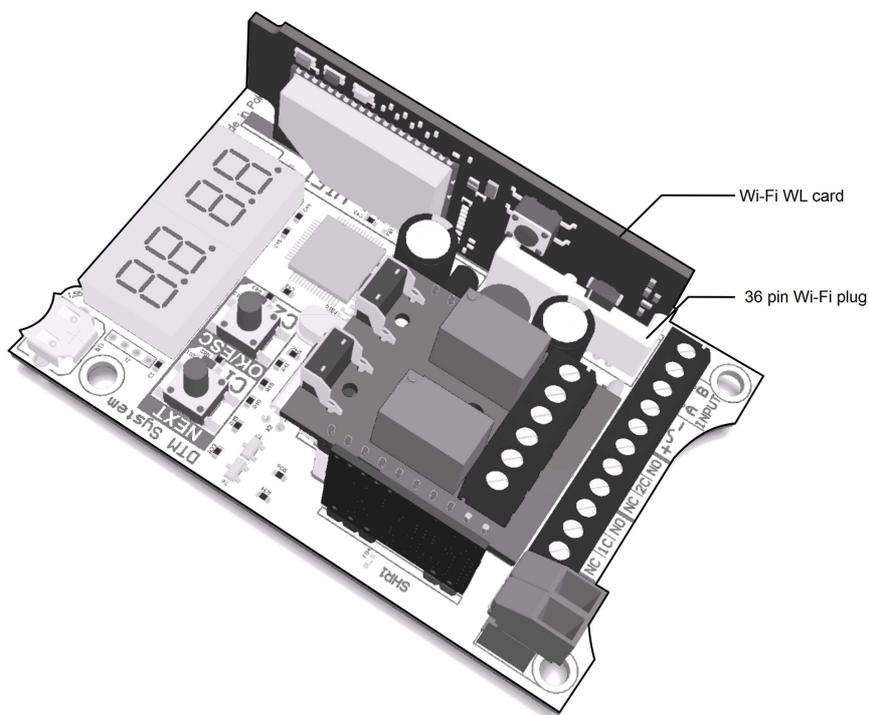


Fig. 3 Proper installation of WL card in the Flex868 receiver.



In case of the need of increasing the Wi-Fi range, the aerial with the increased gain should be used. It is the best to use a directional aerial to WL card and to the router - stronger omnidirectional aerial. Items available at the producer's options.

2. Configuration of Wi-Fi connection

WL card must have an access to the Internet to work properly. It should be connected with the router of the local Wi-Fi network. In case of the lack of the local Wi-Fi network it is possible to use the router with the GSM modem or the 'router' function in smartphone.

The configuration should be performed with the use of the WPS mode of the router (fig. 4, pt. 2.1) or manually (switching the card into the manual configuration mode, fig. 5, pt.2.2).

2.1. Automatic WPS configuration

The WL card configuration with the help of the WPS function of the router should proceed as follows (fig. 4):

- **Step 1:** Switch on the WPS function in the router with the WPS button or through the administrative panel of the router.
- **Step 2:** After the router indicates that the WPS function is switched on it is necessary to press the WPS/RESET button on the WL card for 2 sec - searching for the router with the WPS function switched on is indicated by fast flickering of the yellow "link" diode .

A reboot of the card will take place automatically after correct pairing of the WL card with the router. Correctly parried card will connect with the router and signal it with the yellow diode 'link'.

The WL card will indicate errors that appeared during connecting with the router by signalling diodes (fig. 4 and tbl. 1):

- lack of the communication with the router - diodes blink quickly: yellow 'link' and red 'connect';
- correct connection with the router but without getting the IP address - "link" diode blinks , "connect" diode shines.

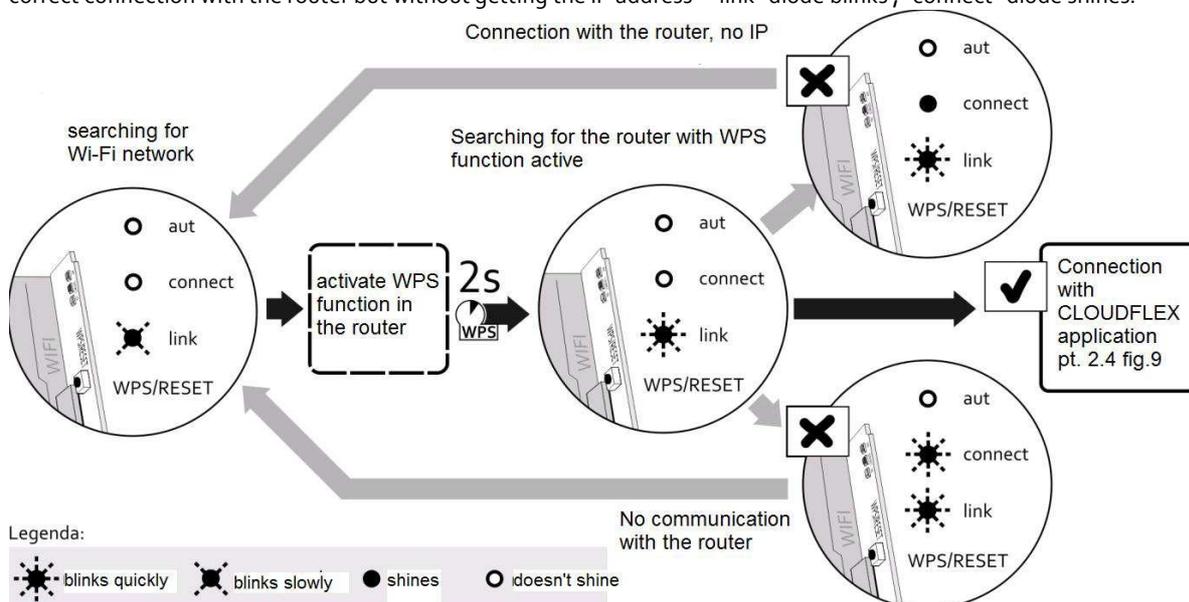


Fig. 4 Automatic acquirement of Wi-Fi settings with the WPS function.



If the card doesn't parry with the router for 60 seconds, the WPS mode is stopped.

2.2. Manual configuration

The lack of possibility of automatic parrying of devices requires from the user to conduct the manual configuration of the WL card. Manual configuration should be conducted as follows:

Step 1: hold the WPS/RESET button for about 10 sec. (fig. 5) until a red "connect" diode starts to blink slowly. Blinking of the red "connect" diode means creating of new Wi-Fi network by the WL card. After correct creation of the new Wi-Fi network diode 'connect' shines.

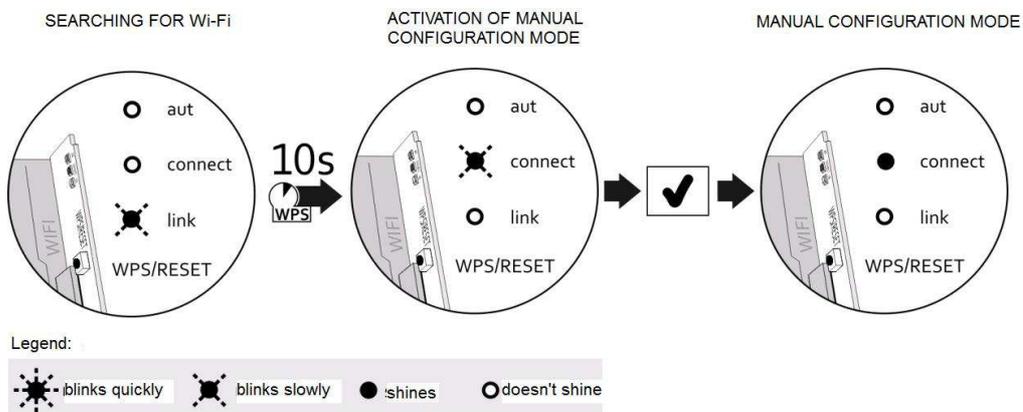


Fig. 5 Manual configuration of the connection with the router – setting the WL card into manual configuration mode.

- **Step 2:** With the device equipped with the Wi-Fi card (e.g. laptop, smartphone) it is necessary to connect with the formed Wi-Fi network named: WiFly-EZX-xx, where xx indicated 2 last signs of the physical address of the card (MAC).
- **Step 3:** After getting a connection with the Wi-Fi network formed by the WL card a green "aut" diode starts to shine.
- **Step 4:** It is necessary to open the browser and enter the address of the site: <http://config.html>. The browser shows the configuration panel of the WL card, (fig. 6). It may be necessary to turn off cellular data when configuring using a telephone.



Fig. 6 Window of configuration panel of the WL card.

- **Step 5:** Search for available networks with button 'Refresh Lists' (fig. 6, pos. 1). The card turns into the mode of searching for available Wi-Fi networks.
- **Step 6:** Upon completion of searching for the network from the ' Available Access Points' choose this Wi-Fi network which a WL card is supposed to connect with. If the textboxes weren't automatically filled in or the network is a deep web, the textboxes must be filled in by hand providing:
 - Wi-Fi name - AccesPoint SSID, (pos.1, fig.7).
 - encryption mode - Security Mode, (pos.2, fig.7).
- **Step 7:** Enter Passphrase, (pos.3, fig.7).
- **Step 8:** If all textboxes are completed correctly click 'Save & Reboot' button (pos. 4, fig. 7). Card that is correctly configured should establish the connection with the router after the restart.

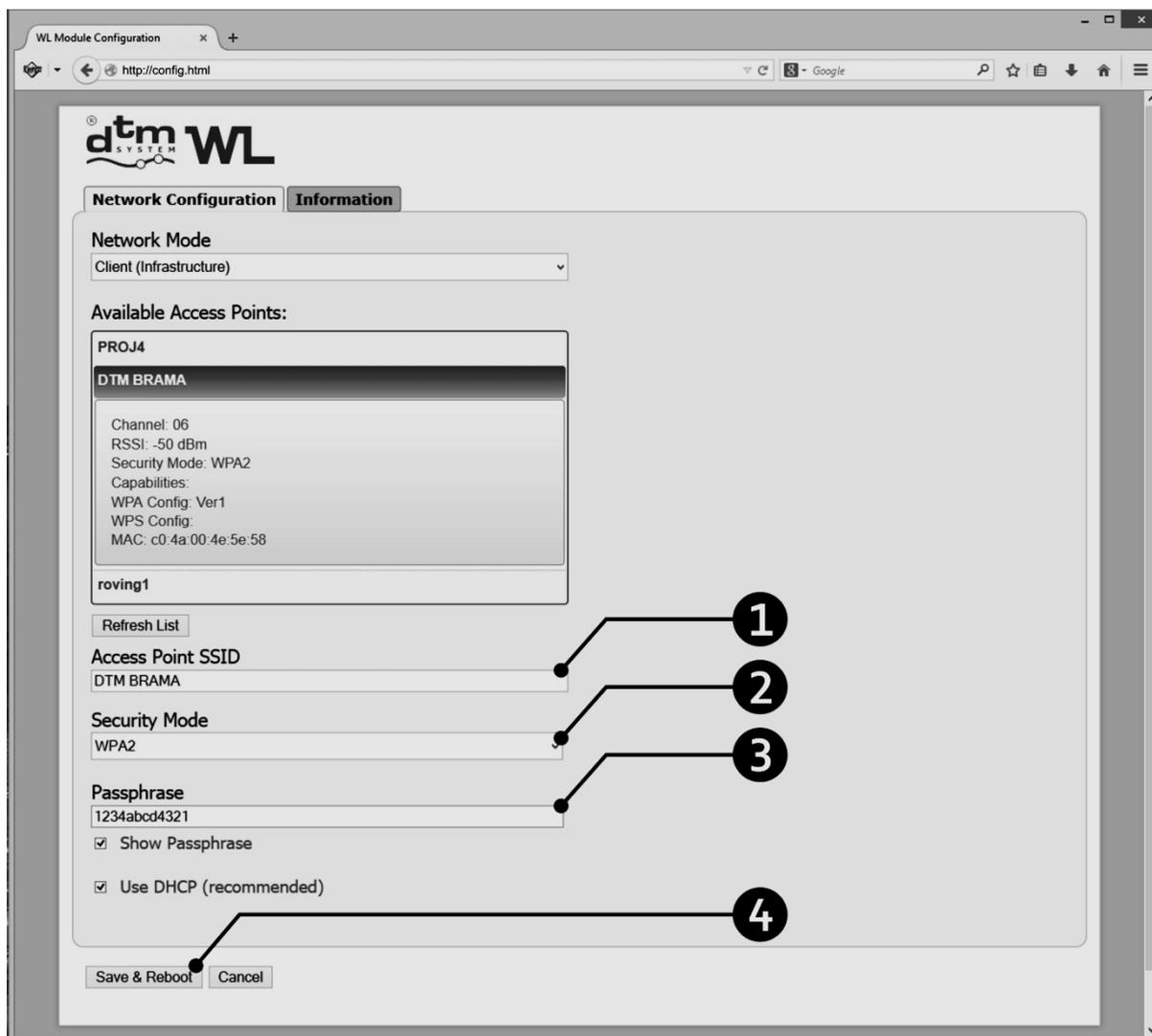


Fig. 7 WL card Configuration panel with chosen network and given password.



After 5 minutes without action the WL card finishes work in manual configuration automatically

3. Operating modes

Correctly configured WL card automatically tries to connect with the preconfigured Wi-Fi network after resuming operation. It is indicated by slow flickering of the yellow 'link' diode . If the network operates correctly, the connection with the router takes place (permanent light of the yellow 'link' diode). The choice of the operating mode of the WL card is done in the device where the card is installed.

3.1. Network Cloud mode

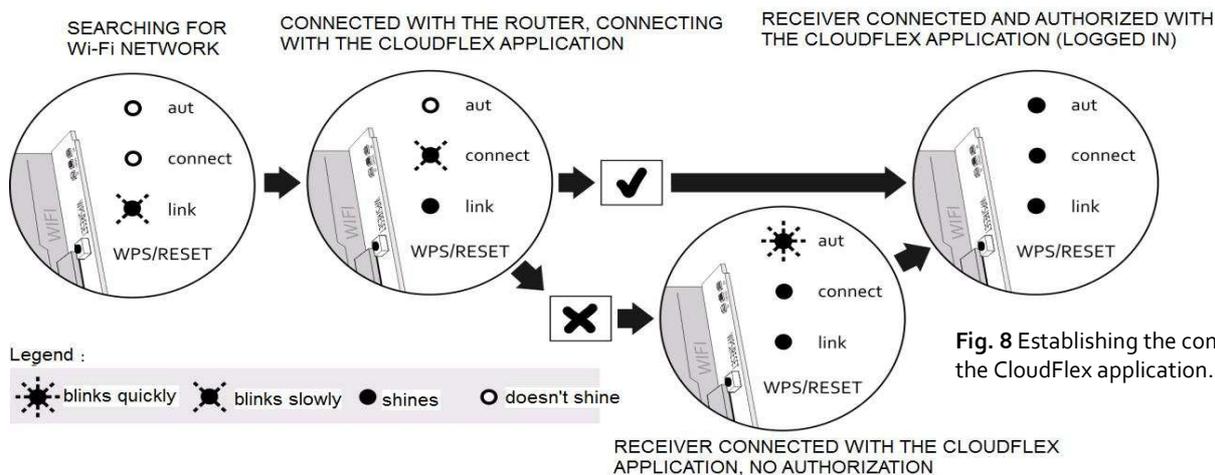


Fig. 8 Establishing the connection with the CloudFlex application.

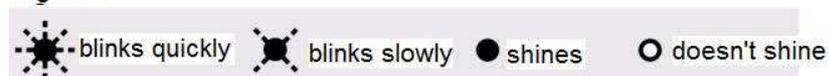
In this mode the card connects with the remote server (so-called cloud). The connection with the server is signalled by lighting of the red 'connect' diode. At first start of the receiver with the WL card, green 'aut' diode starts flickering. This means establishing the correct contact with the CloudFlex application. Next it is necessary to log onto the user account in the www.cloudflex.dtm.pl service and add the receiver to the list of authorized devices. The procedure of adding the receiver will require the knowledge about the ID number of the receiver and the physical WL card address (MAC). In case of the FLEX868 receiver the number should be read from the receiver menu using 'Id' function. The physical WL card address should be read from the label on a card or from the menu of the receiver using 'Et.AF' function. The correct registration of the receiver is indicated with permanent lighting of the green 'aut' diode. Lighting of all three LED diodes on the WL card means the correct functioning of the card and the receiver

4. LED signalling diodes – description and meaning

The WL card has three LED signalling diodes which describe current operation of the card (tab.1).

Yellow diode 'link'	Red diode 'connect'	Green diode 'aut'	Description
			network configuration in WPS mode or signaling the errors in connection with the router (see pt.2.1)
			Wi-Fi network searching
			establishing the connection with the router
			no communication with the router (see pt.2.1)
			IP address was not assigned
			establishing the connection with WAN network
			connected with WAN network
			manual configuration mode
			connection in the manual configuration mode
			receiver connected with the CloudFlex application, no authorization
			receiver connected with the CloudFlex application, authorized

Legend :



Tab. 1 LED signalling diodes – description and meaning.

UTILIZATION



Electrical devices cannot be thrown with municipal waste. Proper utilization of the devices gives the possibility of saving the Earth's natural resources for longer and prevents the degradation of the Environment.



WARRANTY

DTM System provides operational and ready to use devices. The producer gives 24 months warranty from the selling date to the end customer. This time is counted according to the producer warranty labels or serial numbers placed on every product. Producer obliges himself to repair the device for free if during the warranty period there are problems which come because of his fault. Broken device should be supplied on customer's expense to the place of purchase and enclose clear and brief description of the breakage. The cost of mount/dismount is covered by the user. The warranty does not cover: batteries in the remote controls, faults caused by improper usage, user self repairs and adaptations, lightning strikes, voltages or short circuits in the electrical grid. Appropriate legal acts regulate details of the warranty.



DTM System hereby declares that the radio receiver complies with Directive 2014/53 / EU. The full text of the EU

Declaration of Conformity is available at the Internet address.

www.dtm.pl