

WF1 module is designed to remotely control Elmes Electronic hopping code KEELOQ® system receivers (except RP501 receiver) with the use of Android® system smartphone and dedicated "Elmes Control" application free to download from "Google Play" store. Application for smartphones with iOS® (Apple) is not available. The module features remote control 434 MHz band transmitter and four relay outputs for wired control. Smartphone controlling Elmes receivers may be used in local Wi-Fi network. The network must be WPA2 code protected with PSK (Pre-Shared Key) authentication, WPA2-PSK for short. Global control over world wide network is possible if static IP address is assigned to the router. If router is assigned a dynamic address, global control may be accessed by the use of DDNS (Dynamic Domain Name System) service.

Operation mode.

Pressing a button on the screen of a smartphone sends command to WF1 module assigned to the button. The command contains remote transmitter number (1..30) and button number (1..8). In response to the command, the module reacts as below:

- 1) If remote transmitter number is within 1...30 range, sends ca 1 second lasting control transmission corresponding to the use of one of eight buttons of one of 30 hand transmitters.
- 2) If remote transmitter number is within 31...34 range, controls relay outputs 1...4 respectively. In this case, relay output sets output permanent on if button number is 1, sets output off if button number equals 2, and sets output on momentarily for 1.5 second, if button is 3.

Configuration

The WF1 module must be app smartphone configured before first use. Factory settings are as described in "Restoring factory settings" section of the manual. For system safety reasons factory settings should be changed following steps described below:

- 1) In Wi-Fi settings section of smartphone connect to network "Elmes_WF1" and input factory password "0123456789ABCDE".
- 2) Open up form as in fig. 3 in smartphone application by longer pressing any button on screen shown on fig. 1, followed by longer pressed field "Device" in form shown on fig.2. Form 3 appears shown as in fig. 3.
- 3) In form 3 input factory set „Local IP“, „Local Port“ and „Password“ and click "CONFIGURE ELMES WF1". Screen as in fig. 4 should appear.
- 4) Input new personalized settings to your module. If the module is required to set up its own Wi-Fi network, default network name and password should be changed in the "SSID" field. If the module connects to existing network, its name and password should be input along with any available static IP address (the module does not support dynamic IP address assigned by Wi-Fi router). WF1 module password change in field "Password" is also recommended. When settings are sent to the module, it will restart with new settings and fig. 3 screen will appear with changed fields. Press OK to save the new settings also to your smartphone.
- 5) Now, app control buttons in smartphone can be edited, especially transmitter number and the transmitter button number assigned to a given button (fig.2). Next, learn required app button to control Elmes receiver. To do so, initiate procedure of receiver programming as described in its manual followed by double pressing assigned control button on screen of the smartphone (Fig. 1). As an example of the procedure we shall consider Elmes STM controller installed to operate a kitchen window roller. To do so three buttons were created on the screen of the app to move the roller up, down and stop, as shown on Fig. 1. Button „Kitchen▲“ (up) is assigned to button 1 of hand transmitter 1 (Fig.2), button „Kitchen▼“ (down) is assigned to button two of transmitter 1 and „Kitchen■“ (stop) is assigned to button three of transmitter 1. Next, button „Kitchen▲“ is learned to the STM controller memory by pressing STM programming button (on the back of its plastic housing) followed by double pressed „Kitchen▲“ button on the screen of the smartphone. In this case buttons „Kitchen▼“ and „Kitchen■“ are learned to the STM automatically.

Restoring Factory Settings (use switch SW1).

Switch SW1 on the board of the module is used to restore factory settings of the module. To do so press it longer than 8 seconds until LED lights longer and then release the switch. The following settings will be restored:

- 1) operating mode in which the module sets own Wi-Fi network in channel 7 named Elmes_WF1 and password "0123456789ABCDE",
- 2) IP address set to "192.168.0.1",
- 3) port number set to "5555",
- 4) mask "255.255.255.0",
- 5) WF1 module password "abcdefgh",
- 6) DHCP server address range "192.168.0.100 – 200".

Description of “Elmes Control” smartphone application.

Fig. 1. Example of smartphone application screen is shown with six buttons to control operation of two window rollers with Elmes STM controllers installed.

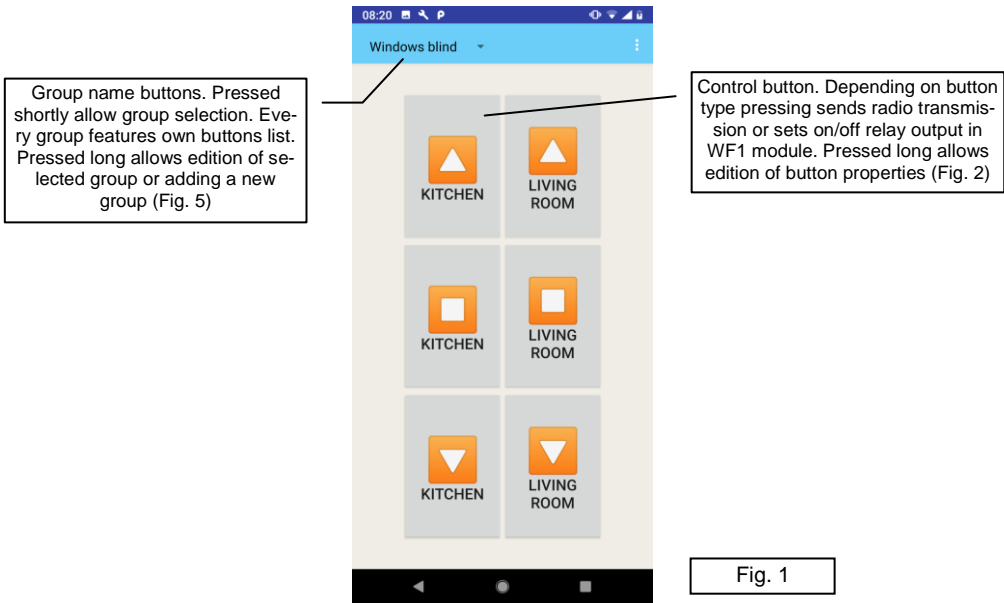
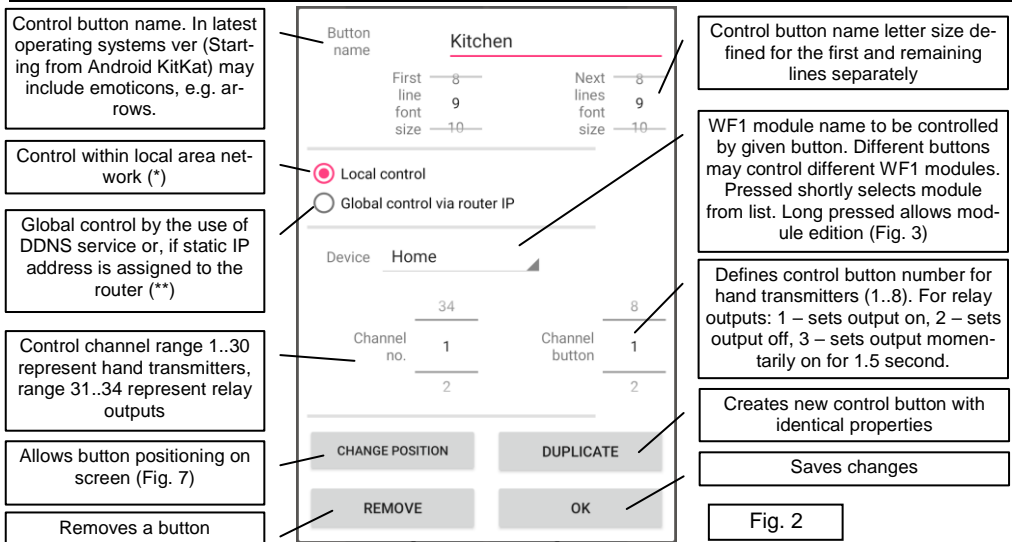


Fig. 2. Functions and properties of screen buttons.



(*) Controlling within local network, data packets will be directed to “Local IP” and to “Local Port”, as in fig. 3.

(**) Controlling within global network, data packets will be directed to “Router IP” and to “Router Port”, as in fig. 3.

Fig. 3. Form screen for input data of WF1 module to be used in remote control. Incorrect data input will not allow connection with the module. "Module name" field may contain any text.

The screenshot shows a configuration form for the WF1 module. The fields and their values are: Device name: Home; Local IP: 192.168.0.2; Local Port: 5555; Password:; Router IP: my_router.ddns.net; Router Port: 5555. Buttons include REMOVE, OK, DUPLICATE, FIRMWARE UPDATE, and SETUP ELMES WF1. Callouts on the left explain fields like 'WF1 module IP address', 'WF1 module listen port in local network', 'External IP address of router or DDNS service address', 'WF1 module listen port in public network', 'Removes WF1 module', and 'Allows firmware update'. Callouts on the right explain 'WF1 module name', 'WF1 module password', 'Saves changes', 'Allows adding a new module by copy current', and 'Allows WF1 module configuration (Fig.4)'.

Fig. 3

(*) Local IP address, port and password must be the same as used in the module configuration screen fig. 4.

(**) In external control two solutions are available:

- If router features static, public IP address supplied by internet provider, it should be input in "Local IP" field.
- If router have a dynamic IP address, it means that the address is changing. In that case DDNS (Dynamic Domain Name System) service should be used provided by many providers, e.g. "no-ip" or "dyndns". Then a name will be assigned to our router (e.g. "my_router.ddns.net") allowing its identification despite its dynamic IP address. That name should be input in "Router IP" field. Advice: before DDNS service provider is selected router operation with the service should be verified.

In both cases above, so called router "port forwarding" should be configured in such a way that incoming data packets from our smartphone received at port: "Router Port" (5555 in sample from fig. 3) were redirected to WF1 module IP address and port (192.168.0.2 and 5555 in example from fig. 4).

Fig. 4. WF1 module configuration window.

The screenshot shows the WF1 module configuration window. It has two radio buttons: 'Client mode (connected to AP)' (selected) and 'AP mode (create own network)'. Fields include SSID: Elmes_WF1; Password:; Radio channel: 7; IP: 192.168.0.2; Port: 5555; Mask: 255.255.255.0; Gateway: 192.168.0.1; Password:; DHCP Server IP Address Range: 192.168.0.100 - 200. A button at the bottom says 'SEND ABOVE SETTINGS TO THE WF1'. Callouts on the left explain 'WF1 module will connect to local router which must operate in WPA2PSK mode', 'WF1 module will create own network operating in mode WPA2PSK', 'Radio channel the WF1 module will operate (set only when WF1 creates own network)', 'Assigned by DHCP server address range (set only when WF1 creates own network)', and 'Sends settings to the WF1 module and restarts it (*)'. Callouts on the right explain 'Wi-Fi network name (SSID) the WF1 module connects to, or the module will create', 'Network password the module is connected to, or Network created by the module', 'Module IP address (*) (**)', 'WF1 module listen port. Allowed values: 1...65535 (*)', 'Network mask', 'Gateway', and 'WF1 module password (*)'.

Fig. 4

(*) NOTICE! After „SEND SETTINGS TO MODULE WF1“ button is pressed, fields "IP Address", "Port" and "Password" appear in respective fields of form shown on Fig.3. To register changed data in smartphone memory "OK" button must be used on form closing. If not, connection with the module will fail.

(**) NOTICE! If module connects to the local AP router, its static IP address must differ from that of other equipment addresses in the network. Assuming router address is 192.168.0.1 with active DHCP server and addressing range of 192.168.0.100 ... 192.168.0.254, then WF1 module should be allocated to one of available address from 192.168.0.2...192.168.0.99 range.

Fig. 5. New group of buttons and group name edition form.

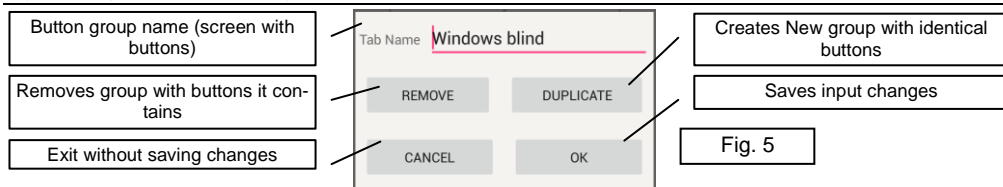
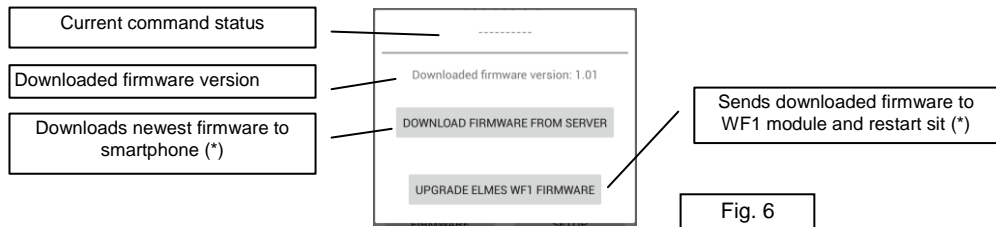


Fig 6. WF1 module firmware update window.



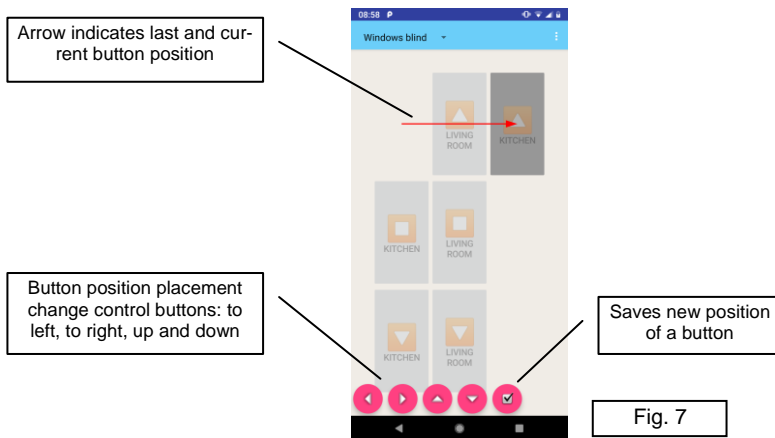
(*) NOTICE! Follow the steps below to update firmware of WF1 module setting up own Wi-Fi network:

- 1) Connect smartphone to internet in other Wi-Fi network, or through GSM network.
- 2) Download new firmware to the smartphone's memory with "LOAD FIRMWARE FROM SERVER" button.
- 3) Switch over to Wi-Fi network created by WF1 module.
- 4) Press "UPDATE WF1 FIRMWARE" button.

If WF1 is connected to Wi-Fi network with access to internet steps 1 and 3 should be omitted.

Smartphone application checks for new WF1 firmware update every time it is started and notifies user of any new version available. However, notification will not take place if the module is not connected to the internet at start time, e.g. it operates in own created Wi-Fi network. Therefore, it is recommended to start the application in network connected to the internet at times, e.g. over the GSM network.

Fig 7. Smartphone screen control buttons layout edition.



Specification

- Radio 433.92 MHz band transmitter , Power < 10mW, hopping code, equivalent of 30 eight buttons hand transmitters operating with all Elmes Electronic made receivers except for RP501;
- Four relay outputs rating 1A/125V, NO or NC type (jumper set);
- Power supply 12..18 VDC, current 32mA at standby (12VDC), up to 100 mA at all relays on;
- Operating temperature range: from -25°C up to +55°C;
- Dimensions (l/w/h): 96/63/28mm;



Manufacturer: Elmes Electronic, 54-611 Wroclaw - PL, Avicenny 2 str., phone +48717845961

Manufacturer's Limited Warranty

Elmes Electronic made alarm, security and remote control products carry two years manufacturer's warranty as from the date of purchase. The warranty is limited to the replacement of faulty original parts or repair defects of improper manufacture. Damage, faulty use or improper handling by the user or installer as well as any changes in product's hardware or software caused by the user voids the warranty and all due repair costs will be charged. Elmes Electronic shall not be responsible for any human or material damage caused by its products failure to operate correctly.



DECLARATION OF CONFORMITY

Producer: Elmes Elektronik
declare under sole responsibility that product:

Wi-Fi Network Remote Control Module

model: **WF1**
complies with essential requirements of the following directives:

2014/53/EU Radio Equipment Directive (RED),
2014/30/EU Electromagnetic Compatibility Directive (EMC),
2014/35/EU Low Voltage Devices Directive (LVD),

and applied harmonized standards, in particular:

EN 60950-1:2007/A11:2009+A1:2010+A12:2011
EN 61000-6-1:2008
EN 61000-6-3:2008/A1:2012
EN 301 489-1 V1.9.2 (2011-09)
EN 301 489-3 V1.6.1 (2013-06)
EN 300 220-1 V2.4.1 (2012-01)
EN 300 220-2 V2.3.1 (2009-12)
EN 50130-4

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Signature:

Director - Mirosław Bińkowski

Date: 2020-10-01

Waste Electrical and Electronic Equipment (WEEE) Symbol:

The use of the WEEE symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly you will protect the environment. Recycling information of this product can be obtained at the place of sale, your household waste disposal service provider, or local authority.

