



User Manual

RadioGate Plus

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Safe operation

To ensure safe and reliable operation of the devices, please observe the following requirements:

- Use the device only for its intended purpose;
- Do not use devices that show signs of malfunctioning;
- Avoid strong physical impacts on the device;
- Protect devices and cables from contact with corrosive liquids;
- Whenever a fault is detected in the device, please contact the manufacturer.

Warning!

The device uses hazardous voltage AC 100-250V

General information

RadioGate Plus series is an intelligent beDMX / Ethernet / DMX converter with merging functions that provides wireless data transmission according to the "beDMX" standard and is effective solution for controlling lighting equipment via DMX512 protocol. A special feature of the transceiver is its multifunctionality, which is expressed in the possibility various transformations, mergers (merging), DMX512 protocols, RDM (ANSI E1.20), ArtNet (1,2,3,4), sACN (Draft, Release), KiNet (v1, v2), RTTrPL, data transmission of these protocols over a radio channel and through Ethernet network, with redundancy functions, as well as the ability building different combinations of receiving / transmitting signals. For data transmission over the radio channel, the transceiver uses the protocol "BeDMX", created on the basis of the Bluetooth 5.0 standard, which guarantees Reliable 2.4GHz wireless connection with the use of adaptive hopping functions and the presence of constant two-way communication between receiver and transmitter. Adaptive Frequency Hopping (AFH) helps to avoid disturbance from any other wireless equipment. To connect additional equipment and configure via Ethernet, the converter has a built-in Ethernet LAN 10/100Base-T port. Maximum distance is up to 1500 metres with directional antennas. RadioGate Plus series is powered by AC ~90-250 V, 50/60 Hz or from Ethernet using the using the IEEE 802.3af standard – Power-over-Ethernet technology (depends on modification), or DC 12-24V.

Merging

HTP: highest takes precedence

LTP: latest takes precedence

AUTO: last modified takes precedence - intelligent merging mode

PRIORITY: for sACN streams with priority tag

BACKUP: primary/secondary universe backup

TRIGGER and X-FADE: dedicated channel / dedicated universe controllable merging

Connection types

BeDMX2 connection

There are 1 or 2 coaxial SMA or RP-SMA connectors for antennas capable of working both on reception and transmission. Communication between BeDMX ports is performed according to Bluetooth 5.0 standard.

DMX connections

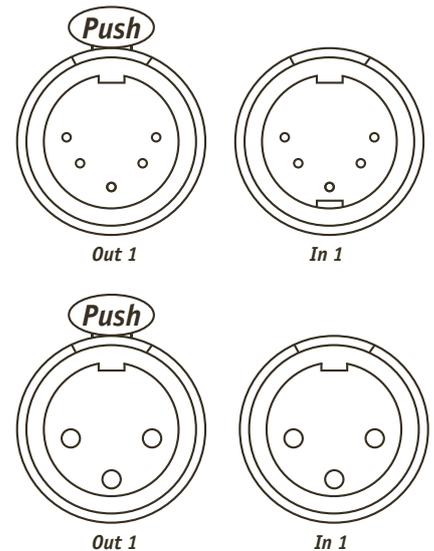
XLR 5-pin connectors are used to connect DMX512 equipment to DMX-ports of RadioGate Plus Solid. If necessary, the device can be equipped with XLR 3-pin connectors. Each port of RadioGate Plus Solid has 2 connectors — one M connector and one F connector, what allows the port to pass-through the DMX bus. Using internal DIP switches, it is possible to enable line terminators (120 ohms) on DMX bus.

In RadioGate Plus Arma, DMX connection is made with terminal block connectors, located inside the device case.

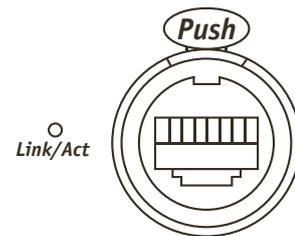
Ethernet connection

The device connects to the network through RJ-45 socket. RadioGate Plus devices have one Link/Act LED to indicate the status of the network connection.

Each device has unique IP and MAC addresses. IP address of the device, subnet mask, and other network parameters can be changed, but even in this case, the device is still available at the source IP address (2.x.x.x) for ping and http requests. Thus, even in case of loss of a new device IP address can be accessed to the network using the original IP address via the web interface.



Pic. 1
XLR(F) and XLR(M) DMX connectors
(5pins/3pins)



Pic. 2
Ethernet connector

Installation

1. Visual inspection of the device to make sure that damage caused by transportation.
2. Install the supplied antennas and connect necessary DMX cables.
3. If the device will be installed on the truss, screw the mounting kit.
4. Connect the power cable of the AC 100-250V device to the power outlet and configure devices.

Warning!

Before mounting and power up, it is necessary to verify protective earthing and cable connections.

Device configuration

1. Unscrew the screws and remove the upper lid.
2. Set the device operation mode using sections 1 and 2 DIP-switch:

Section 1	Section 2	Device function
On	On	Transmitter mode
On	Off	Selecting a mode using the buttons (default)
Off	Off	Receiver mode

3. For DC models, select a wireless subnet using sections 3 and 4 DIP switches:

Section 3	Section 4	Wireless Subnet Number
Off	Off	0
On	Off	1
Off	On	2
On	On	3

4. For models set advanced device parameters using sections 7 and 8 of the DIP switch:

Section 7	Subnet mode
	Fixed subnet for receiver (default)
	Auto subnet for receiver

Section 8	Setting
On	DIP-switch setting (default)
Off	Setup via web interface

5. Install the lid and tighten the screws.

On

Off

Wireless network configuring (receiver)

The device is ready for further network configuration.

Wireless network configuring (transmitter)

1. Power up the device. "LINK" LED (green) must be steady on or blink.
2. Turn on all receivers that are needed to connect to device, placing them at a minimal distance from the device. If all receivers work properly, they light up "STATUS" LED (red). Turn off all receivers, which should not be included in the configured network.
3. On transmitter device, press and hold for 1 second the button "SETUP" on port 1. Then, transmitter searches free (not connected) receivers for 10 seconds; during this process LEDs "LINK" (green) and "STATUS" (red) blink fast.
4. Upon completion of search process, verify the correctness of created network: on the transmitter LEDs "LINK" (green) and "STATUS" (red) blink slowly, on all connected receivers LED "STATUS" blink slowly (red).
5. If your network configuration is not correct, switch off and on the device, and after rebooting the device, repeat steps 2-4.
6. If your network configuration is correct, press and hold for 1 sec the "SETUP" button to save created network configuration in non-volatile memory of the transmitter. Device restarts and resumes normal operation with the new network configuration.
7. For dual channel devices repeat steps 2-6 to configure second channel.
8. Transmitter device and configured network is ready to work.

Switching device mode for all modifications

1. Power up the device. Depending on current settings saved in non-volatile memory, device starts either in transmitter mode (green LED "LINK" is steady on or blinking), or in receiver mode (green LED "LINK" is off).
2. If current mode is not correct for this device, switch the mode by pressing simultaneously and holding for 4 sec the "SETUP" and "RESET" buttons. The new mode is saved in non-volatile memory, and the device reboots with new settings. Configuration of the network, formed in transmitter mode, is preserved when the device is switched in receiver mode and back.
3. After setting the desired mode of operation, configure device in the receiver or transmitter mode (see above).

Operation

RadioGate Plus devices start their normal operation in a few seconds after they have been powered up. Device always operates based on last saved settings. Viewing RadioGate Plus settings does not affect normal operation until any of the settings have been saved. When changes are saved, the device applies the new settings immediately, without having to power it down. The status of each DMX port is indicated by the corresponding status LED.

In the input mode, port status LED is steady on if there is valid DMX input signal or flashes slowly the DMX input signal is invalid or absent. In the output and loop modes, port status LED is steady on when there is no data for output and blinks when new DMX data are transmitted (updated).

In the off mode, port status LED is off.

Current status of each port can be controlled through the web interface.

Receiver mode

1. When the power is turned on, the receiver waits for a connection request from the transmitter. At the same time, the STATUS status LED (red) is constantly on.
2. When the connection to the transmitter is established, the communication LED is constantly on LINK (green). DMX512 data received from the transmitter is output to the output connector.
3. Pressing the RESET button (for DC version) disconnects the receiver from the transmitter and rebooting the device. After rebooting, the receiver goes into standby mode.

Wireless status indication interface

Transmitter Mode

LED "LINK" (green)	LED "STATUS" (red)	Status
is on	is off	Normal operation, all receivers are connected, valid signal at the DMX-input.
blinks slow	is off	Normal operation, all receivers are connected, no signal at the DMX-input.
is on	is on	Normal operation, connection is being established with one or more receivers or lost, or no receivers for connection, valid signal at the DMX-input.
blinks slow	is on	Normal operation, connection is being established with one or more receivers or lost, or no receivers to connect with no signal at the DMX-input.
blinks fast	blinks fast	Configuration mode, searching for receivers.
blinks slow	blinks slow	Configuration mode, new network configuration can be stored.
is off	is off	Off, non-functional or failure state.

Receiver mode:

LED "LINK" (green)	LED "STATUS" (red)	Status
is on	is off	Normal operation, connected to transmitter.
is off	is on	Normal operation, no connection with transmitter.
is off	blinks slow	Configuration mode, connected to transmitter being in the network configuration mode.
is off	is off	Off, non-functional or failure state.

Troubleshooting

The list of possible malfunctions and methods of their elimination

Manifestation malfunctions	Probable cause	Method eliminate
Device is not working no LED is on	Lack of voltage Network cable break	Connect the device to a working power outlet Replace network cable
Invalid function devices	Wrong position Dip-switch mode Invalid mode in saved device settings	Set DIP Switch Positions To with the item "Configuring the device" Reconfigure the network according to the mode work
No connection single transmitter or several receivers	Incorrect network configuration	Switch device function

Web settings

RadioGate Plus devices support configuring most of their parameters through the web interface using HTTP protocol (TCP port 80).

Main settings

RadioGate4 Solid
Main settings

Indication: Normal Blink Off

Device name:

Device description:

Device status: Power-on tests successful

ArtNet 4 Net address:

Ports:

Port	Mode/merging	Pri. unv. protocol	Pri. unv. number	Sec. unv. protocol	Sec. unv. number	Status
DMX 1	In	ArtNet	0	Disabled	0	no DMX signal
DMX 2	In	ArtNet	1	Disabled	0	no DMX signal
DMX 3	In	ArtNet	2	Disabled	0	no DMX signal
DMX 4	In	ArtNet	3	Disabled	0	no DMX signal
BeDMX1/1	Out/Auto	ArtNet	0	Disabled	0	Tx: 0 of 1 connected
BeDMX2/1	Out/Auto	ArtNet	1	Disabled	0	Tx: 0 of 0 connected
BeDMX1/2	Out/Auto	ArtNet	2	Disabled	0	Tx: 0 of 1 connected
BeDMX2/2	Out/Auto	ArtNet	3	Disabled	0	Tx: 0 of 0 connected

Save settings Set default Reset

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Pic.3
Main settings

Indication – switching LED indication modes

Normal	Indication depending on the current port status
Blink	Search mode
Off	LEDs are off

Device name – edit device name (up to 17 characters)

Device description – editable device description (up to 63 characters)

Device status – current state of the device

ArtNet 4 Net address – network number (0-127, only for ArtNet 4)

Ports – Configuration and status of DMX ports

Mode/merging	Port direction and merge mode for output
Pri. unv. protocol	Primary universe protocol
Pri. unv. number	Primary universe number
Sec. unv. protocol	Secondary universe protocol
Sec. unv. number	Secondary universe number
Status	Current state of the port

To save the changes in main settings, click **«Save settings»**.

To restore default values of main settings, click **«Set default»**.

To reset to the current saved values of main settings, click **«Reset»**.

Advanced settings

To edit the advanced settings of the device, click on the link “Advanced”.

RadioGate4 Solid
Advanced settings

Main **Advanced** Network Profiles Firmware

RDM devices:

```
BeDMX1/1 - no information
BeDMX2/1 - no information
```

Start discovery Refresh report

DMX signal timing:

Break, usec	MaB, usec	Data channels	Pause, usec
200	20	512	0

DMX line terminator:

Port	1	2	3	4
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Options:

Frame integrity mode	ArtNet Subnet-Unv. mode	ArtNet 4 support	sACN Release	KiNet v2	SNMP enable
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Advanced port settings:

Port	Src. timeout, sec	Trigger/XFade unv. protocol	Trigger/XFade unv. number	Common Trigger/XFade control channel	Loop. unv. protocol	Loop. unv. number
DMX 1	10	Disabled	0	512	Disabled	0
DMX 2	10	Disabled	0	512	Disabled	0
DMX 3	10	Disabled	0	512	Disabled	0
DMX 4	10	Disabled	0	512	Disabled	0
BeDMX1/1	10	Disabled	0	512	Disabled	0
BeDMX2/1	10	Disabled	0	512	Disabled	0
BeDMX1/2	10	Disabled	0	512	Disabled	0
BeDMX2/2	10	Disabled	0	512	Disabled	0

Scenes/Triggers:

Scene	Input mode	Delay, msec	Action	Status
Scene 1	N/A	N/A	Capture scene	-
Scene 2	N/A	N/A	Capture scene	-
Scene 3	N/A	N/A	Capture scene	-
Scene 4	N/A	N/A	Capture scene	-

Save settings Set default Reset

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Pic. 4
Advanced settings

RDM devices – RDM devices list, connected to DMX-ports

Start discovery

Searching connected devices

Refresh report

Refresh search/list state detected devices

DMX signal timing – sets the parameters of the output DMX signal for all ports

Break	from 4 to 1000 μ s
MaB	from 4 to 1000 μ s
Data slots	1 to 512
Pause	from 0 to 10000 μ s

DMX line terminator – enables (selected) or disables (cleared) termination resistor between D+ and D- wires of DMX line on each port.

Options – enable/disable device features.

Advanced port settings – settings for advanced features for each port

Src. timeout	Universe source timeout, in seconds
Trigger/XFade unv. protocol	XFade/Trigger control universe protocol
Trigger/XFade unv. number	XFade/Trigger control universe number
Trigger/XFade control channel	XFade/Trigger control channel
Loop. unv. protocol	Loop back universe protocol
Loop. unv. number	Loop back universe number

Triggers/alarms - Trigger and Static scenes setup (only "Capture scene" Action is applicable for RadioGate Plus series)

Input	Trigger/Sensor input
Mode	Operating mode (disabled, trigger/alarm sensor normally open/closed)
Delay, ms	Delay for triggering in milliseconds
Status	Current status of input (open, closed, active, alarm)
Action	Save the current state of all DMX-ports as scene to recall on trigger activation

To save the changes in main settings, click **"Save settings"**.

To restore default values of main settings, click **"Set default"**.

To reset to the current saved values of main settings, click **"Reset"**.

Network settings

To edit the network settings of the device, click on the link **“Network”**.

RadioGate4 Solid

Network settings

	Main	Advanced	Network	Profiles	Firmware
MAC address:	00:02:8C:A6:19:22				
Current parameters:	primary IP: 2.161.25.34 (static), primary mask: 255.0.0.0 secondary IP: 2.161.25.34				
Primary IP:	<input type="text" value="2.161.25.34"/> <input type="checkbox"/> Auto (DHCP)				
Primary mask (static):	<input type="text" value="255.0.0.0"/>				
Gateway IP (static):	<input type="text" value="0.0.0.0"/>				
ArtNet UDP port:	<input type="text" value="6454"/>				
sACN UDP port:	<input type="text" value="5568"/>				
Access login:	<input type="text" value="admin"/>				
Access password:	<input type="password"/>				
	<input type="button" value="Save settings"/> <input type="button" value="Set default"/> <input type="button" value="Reset"/>				

Pic. 5
Network settings

MAC address	Hardware address and secondary (permanent) IP address of the device
Main IP	Set the main network address of the device
Subnetwork mask	Set the mask of the IP subnet
Gateway IP address	Set the network address of the gateway (if ability to operate via the Internet is required)
Art-Net UDP port	Set the UDP port for ArtNet protocol
sACN UDP port	Set the UDP port for sACN protocol
Access login/password	Login and password for access to web interface of device. If password is empty, authentication is not performed

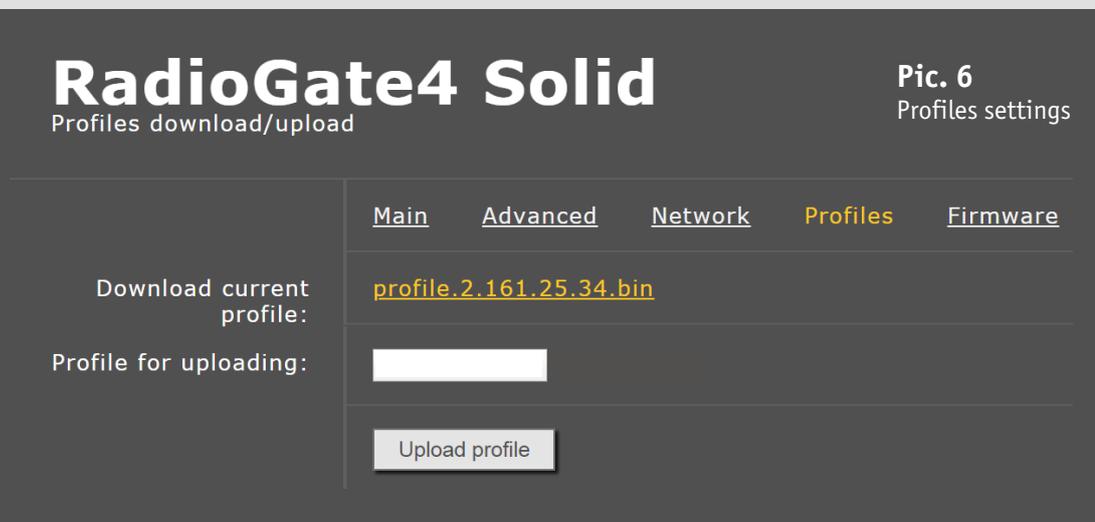
To save the changes in main settings, click **“Save settings”**.

To restore default values of main settings, click **“Set default”**.

To reset to the current saved values of main settings, click **“Reset”**.

Profiles settings

For profile operations, click on the link **“Profiles”**.

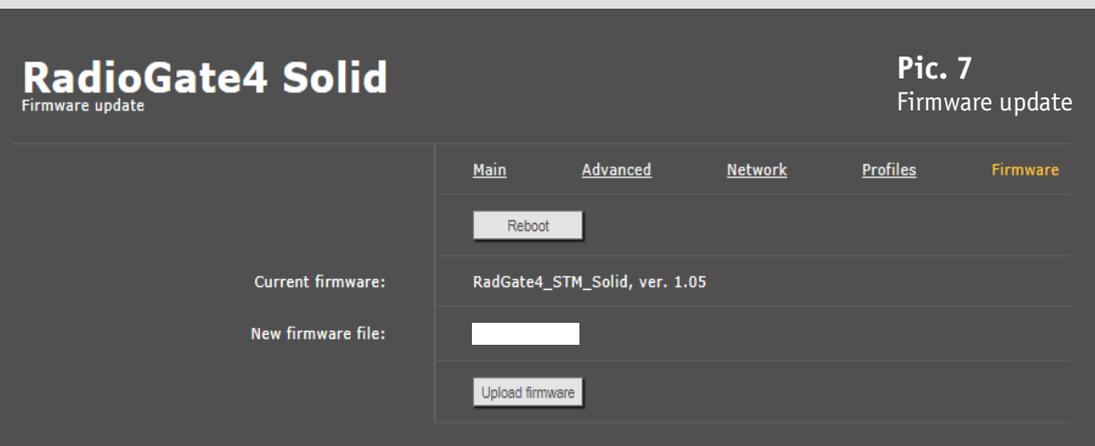


Pic. 6
Profiles settings

Download current profile	Download the current settings as a file
Profile for uploading	Select the file of previously saved profile
Upload profile	To upload the selected profile in the device

Firmware update

For profile operations, click on the link **“Firmware”**.



Pic. 7
Firmware update

Reboot	Device reboot button
Current firmware	Current firmware name and version
New firmware file	Select firmware file to upload to the device
Update firmware	Upload the selected firmware file

After software update downloading, need to accept updating by clicking button **“Reboot”**.

Warning!

To update firmware of the device, click on the link **“Firmware”**.

Technical maintenance

Maintenance the device, search and troubleshooting should be performed by service personnel. The device should be free from dirt, dents, connecting cables and wires must be intact and securely fastened.

Notes



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