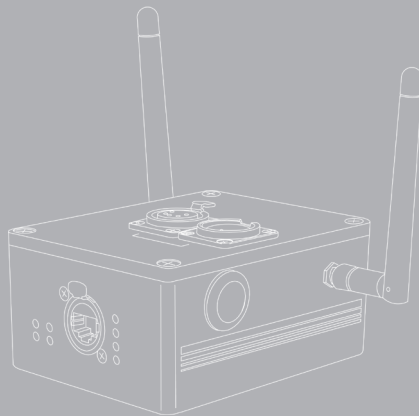User Manual

# RadioGate Solid
# CrossGate Solid

RGS-X-BE-XX, RGS-X-2BE-XX,
CGS-X-DBE-XX, CGS-X-D2BE-XX



SUNDRAX electronics
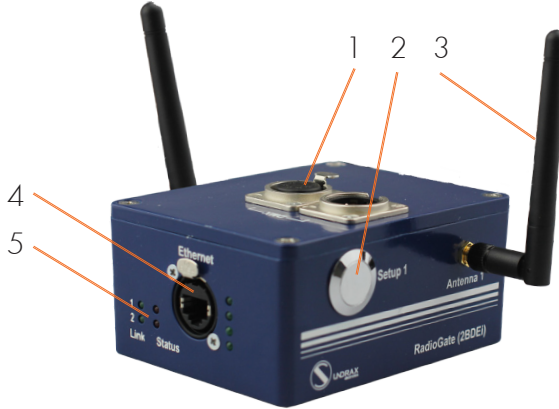
CE

# Table of contents

# Visual appearance



Pic.1 Main interfaces and indicators

| 1 | DMX port (CrossGate Solid only) | 4 | Ethernet port |
|---|---|---|---|
| 2 | Setup connection button ("SETUP") | 5 | "LINK" and "STATUS" indicators |
| 3 | Antenna | | |

# Specifications

| Wireless channels | 1 or 2 |
|---|---|
| RF band | 2.4 GHz |
| Communication protocol | Bluetooth v.2.0 |
| Transmission range | 100 m |
| DMX data refresh rate | 44 Hz |
| Max current consumption | 0,1 A |
| Setup | Buttons, Web-interface |
| Power supply | ~90-250 VAC, 50/60 Hz or 12-24 VDC |
| Fuse | 0,5 A |
| Working temperatures | -40...+65°C |
| Mounting | Surface/truss |
| Dimensions | 55 x 115 x 90 mm |

# Safe operation

> **WARNING!**
> The device uses hazardous voltage AC 230 V

In installation, operation, preventive maintenance and repairs of the device, the requirements of the safety rules must be followed.

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 shows signs of malfunctioning;
- Avoid strong physical impacts on the device;
- Protect devices and cables from contact with moisture or other corrosive liquids;
- Prevent any improper disconnection of the Ethernet cable from the device being disconnected.

Whenever a fault is detected in the device, please contact the manufacturer.
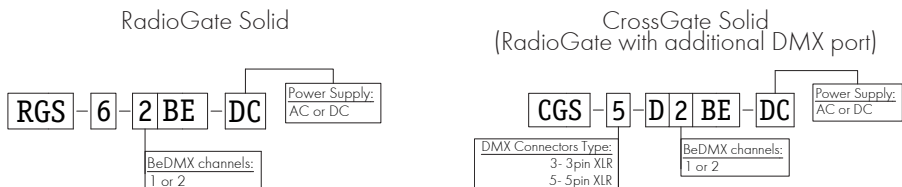
# General information

"RadioGate" and "CrossGate" devices designed for wireless transferring of Art-Net and sACN data used in intellectual lighting control systems.

## Key features:

- Die-cast metal casing, simple configuration.
- Bidirectional communication.
- Up to 1500 m transmission range.

## Modifications

RadioGate Solid

CrossGate Solid
(RadioGate with additional DMX port)

RGS – 6 – 2 BE – DC    Power Supply: AC or DC

BeDMX channels: 1 or 2

CGS – 5 – D 2 BE – DC    Power Supply: AC or DC
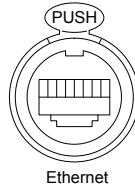
DMX Connectors Type:
3- 3pin XLR
5- 5pin XLR

BeDMX channels: 1 or 2

# Connection types

## Ethernet connection

Device is connected to the network via RJ-45 (EtherCON).



Pic.2 Ethernet connector

Each device has unique IP and MAC addresses. Device's IP address, subnet mask, and other network parameters can be changed, but even in this case, the device is still available on the original IP address (2.x.x.x) for ping and http requests. Even in case of loss of the new IP address, the device can be accessed on the network using the original IP address through the web-interface.

## DMX connections (CrossGate only)

XLR 5-pin connectors are used to input/output DMX signals to/from the device. If necessary, the device can be equipped with XLR three-pin connectors. DMX port has 2 connectors — one M connector and one F connector, which allow the port to pass-through the DMX bus. In some cases the device can be equipped with a single M-type connector for each port.
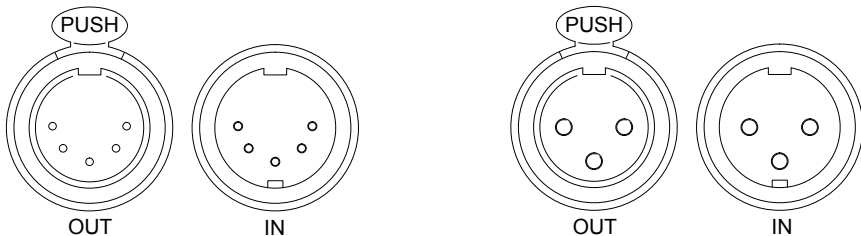


Pic.3 Five-pin and three-pin DMX connectors

3

## BeDMX connection

There are 1 or 2 coaxial RF connectors RP-SMA type for antenna connection, capable of working both on reception and transmission. Connection of BeDMX-ports with external master or slave devices is performed by Bluetooth 2.0.

# Installation

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

**1.** Ensure the device has no damage due to transportation.

**2.** Attach supplied antennas and connect necessary DMX cables.

**3.** Connect device to Ethernet network using RJ45 cable.

**4.** Connect device mains supply cable 230 V to the power outlet and configure the device.

# Device configuring

Set the operation mode of the device, using a rotary switch at the case bottom in accordance with the table:

| Position | Operation mode |
|---|---|
| 8-F | Each device port can connect only to the corresponding port of the multiport device.* |
| 0-7 | Each device port can connect to any port of multi- or singleport device. |

*Further, this configuration (with the same ports mode) will be considered as default.

## Wireless network configuring (receiver):

Device is ready for further configuration of the network.

## 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:

**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 at the same time the "SETUP" button for both ports. 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

Normal operation of the device in any mode starts immediately after switching on power supply.

## Transmitter mode:

**1.** When power on, the transmitter is connected to all the receivers belonging to the formed network.

**2.** DMX data of the Ethernet protocols Art-Net and sACN received by transmitter, are sent to all currently connected receivers. Processing (filtering, merging, etc.) data from the network are similar to "ArtGate" devices. Installation/reconnection process to one of receivers does not affect transmission of data to already connected devices. Transmitter can connect to "RadioGate" modifications as well as "CrossGate" modifications.

## Receiver mode:

**1.** When power is switched on, receiver waits for request for connection from transmitter. LED "STATUS" (red) is steady on.

**2.** When connected to transmitter the LED "LINK" (green) on receiver is steady on. Art-Net or sACN protocols data, received from transmitter, are processed, according to input port settings like on "ArtGate" devices.

# LED indication

Current status of each device's port is displayed by LED "LINK" (green) and "STATUS" (red). All possible states of port and values:

## Transmitter mode:

| LED "LINK" (green) | LED "STATUS" (red) | Status |
|---|---|---|
| is on | is off | Normal operation, all receivers are connected, no new network DMX-data. |
| blinks fast | is off | Normal operation, all receivers are connected, receiving new network DMX data. |
| is on | is on | Normal operation, with one or more receivers is establishing or lost connection, or there are no receivers for connection, no new network DMX data. |
| blinks fast | is on | Normal operation, with one or more receivers is establishing or lost connection, or there are no receivers for connection, receiving new network DMX data. |
| blinks fast | blinks fast | Configuration mode, process of searching for receivers. |
| blinks slow | blinks slow | Configuration mode, new network configuration created and 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 with transmitter. |
| is off | is on | Normal operation, no connection with transmitter. |
| is off | blinks slow | Configuration mode, connected to the transmitter in network configuration mode. |
| is off | is off | Off, non-functional or failure state. |

# Web-settings

"RadioGate" devices (modifications BE, 2BE, DBE and D2BE) allow you to configure most of its settings via Web interface by HTTP protocol (TCP-port 80). To access the interface, open any browser and type in the address bar the IP address of the device in form of [2 . x . x . x], which is written on the device's case. To access to Web interface, the device must be switched on and connected to LAN.

## Main settings

To access the settings page enter the IP address of the device to the browser. Main settings page of "RadioGate" device will be displayed.



Pic.4 Main settings page

• Indication – buttons to switch the LED indication modes:

| Normal | Display the current state of interfaces. |
|---|---|
| Blink | Search mode. |
| Off | LEDs are off. |

- Device name – view/edit the name of the device (up to 17 characters);

- Device description – view/edit the description of the device (up to 63 characters);

- Device status – current status of device;

- Ports – set the parameters of each interface port:

| Subnet | Set Art-Net subnet (from 0 to 15). |
|---|---|
| Universe | Set Art-Net universe (from 0 to 15). |
| I/O mode | Set the mode/direction of the port (IN, OUT, OFF). |
| Merge mode | Set the merging mode (LTP, HTP, AUTO, Overlay). |
| ACN unv. | Set sACN universe (values from 1 to 65279, value 0 disables the using of sACN). |
| Status | Current status of the port. |

Port BeDMX1 correspond to first wireless channel, the port BeDMX2 to second wireless channel (for modifications 2BE, D2BE), port DMX - additional wired DMX interface (for D2BE modification).

Variable merging options: **HTP** (highest takes precedence), **LTP** (latest takes precedence), **AUTO** (last modified takes precedence – intelligent merging mode that provides availability to manage installation from two consoles simultaneously), **OVERLAY** (merges custom slots from two ArtNet/sACN streams, fully customized through web interface), **PRIORITY** (for sACN streams with priority tag, console with the highest priority for a given Universe will be in charge). Merged data may be outputted to physical DMX ports, and also may be looped back to Ethernet as new ArtNet/sACN stream.

- 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 advanced settings, press link "Advanced".



Pic.5 Advanced settings page

- Overlay settings – set the overlay parameters of each interface port:

| Port | Name of interface port. |
|---|---|
| Src. universe | Number of Art-Net or sACN universe that will be used as overlay source (destination universe is the universe selected on "Main" page for output port). Representation of source universe is different for Art-Net and sACN. For Art-Net, universe entered and showed as "<subnet>-<universe>", where both numbers are from 0 to 15. For sACN, universe entered and showed as decimal number from 1 to 65279. |
| Src.start | Starting slot for source universe (source position for first step). |
| Src.step | Size of step in source universe (in slots). |
| Dst.start | Starting slot for destination space (destination position for first step). |
| Dst.step | Size of step in destination space (in slots). |
| Steps cnt. | Number of steps that must be processed. |
| Block size | Size of one copying block. |

- BeDMX- control of each BeDMX wireless interfaces:

| Name | Name of interface. |
|------|--------------------|
| Function | Function (role) of device's interface in wireless communication (Transmit, Receive, Off). |
| State | Current state of interface, depending on current function. |
| Action | For transmitter - available SETUP actions (Search or Accept, depending on current SETUP procedure phase). |
| 1,2,3,...,7 | For transmitter – current state of connections with receivers ("+" - connection established, "-" - connection not established/lost). |

- To save the changes in advanced settings, click "Save settings".

- To restore default values of advanced settings, click "Set default".

- To reset to the current saved values of advanced settings, click "Reset".

# Network settings

To edit network settings, press link "Network".



## RadioGate
### Network settings
www.sundrax.com

Main  Advanced  Network  Profiles  Firmware

| | |
|--|--|
| MAC address: | 00:17:E8:A6:13:62 (secondary IP: 2.160.19.98) |
| Main IP: | 2.160.19.98 |
| Subnetwork mask: | 255.0.0.0 |
| Gateway IP: | 0.0.0.0 |
| Art-Net UDP port: | 6454 |
| ACN UDP port: | 5568 |

Save settings    Set default    Reset
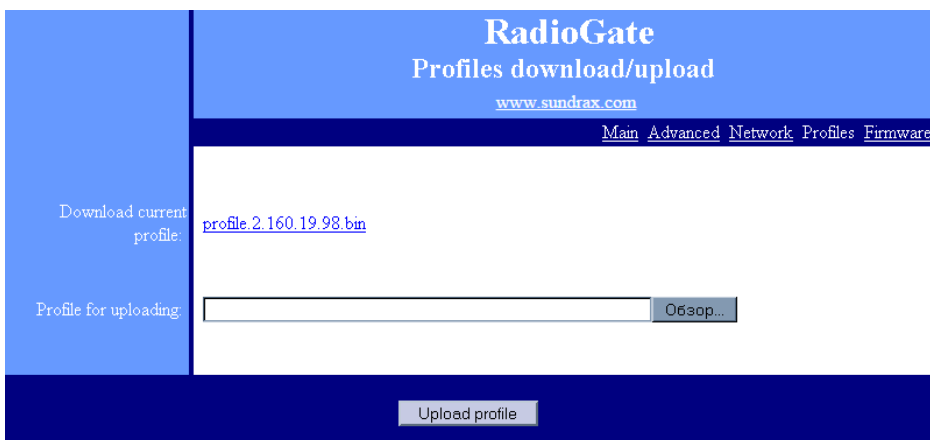
Pic.6 Network settings page

11

- MAC address – MAC address and the secondary IP address of the device, which are set by the manufacturer and are not editable. The secondary IP address can be used to get access to device's web-interface even in situation when the main IP address is lost/forgotten by the user;

- Main IP – view/edit main network address of the device;

- Subnetwork mask – view/edit IP subnetwork mask;

- Gateway IP address – view/edit gateway IP address (used only for transmitting via Internet);

- Art-Net UDP port – view/edit UDP port for Art-Net protocol;

- ACN UDP port – view/edit UDP port for sACN protocol.


- To save the changes in network settings, click "Save settings".

- To restore default values of network settings, click "Set default".

- To reset to the current saved values of network settings, click "Reset".


## Profiles management

To edit profiles settings, press link "Profiles".



**RadioGate**
Profiles download/upload
www.sundrax.com

Main  Advanced  Network  Profiles  Firmware

Download current profile: profile.2.160.19.98.bin

Profile for uploading: [                    ] Обзор...

Upload profile

Pic.7 Profiles settings page

- Download current profile – download/save the current profile into local computer. Profile is a binary file that contains all settings and parameters of the device and its interfaces. After saving the profile, user may change the name of the file;

- Profile for uploading – browse for new profile's file;

- Upload profile – upload the chosen profile. While uploading, all settings, except MAC address and secondary IP address, are replaced with profile's data.

## Firmware update

To upgrade the Firmware of the device, press link "Firmware".
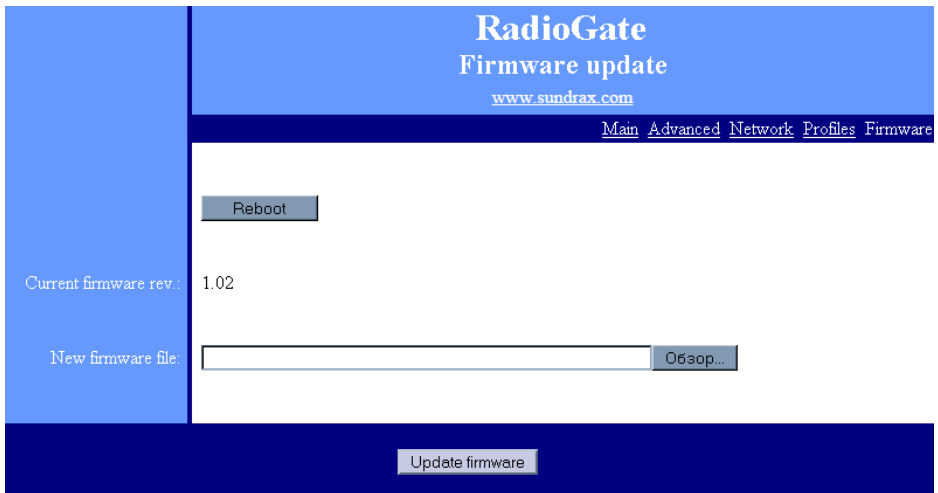


Pic.8 Firmware update page

- Reboot – reset the device, also confirm uploaded firmware;

- Current firmware rev. – version of the current firmware;

- New firmware file – browse for new firmware's file;

- Update firmware – upload the chosen firmware to the device.

Please note! Selecting and uploading any other third-party file may cause device malfunction.

# Troubleshooting

The list of possible malfunctions and methods of their elimination:

| Malfunction manifestation | Probable cause | Remedy |
|---|---|---|
| Device does not work, no LED is lit | No voltage. | Connect the device to working socket-outlet. |
| | Power cable is broken. | Replace the power cable. |
| Invalid mode device port. | Incorrect port(s) mode. | Set the necessary port mode using the buttons "SETUP" or Web interface. |
| No connection of transmitter to one or more receivers | Wrong network configuration. | Reconfigure the network in accordance with device mode. |

# 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

Please send all your warranty-related questions to
support@sundrax.com
*All Sundrax products are covered by a 36 months warranty.*