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User Manual

ArtGate
Bidirectional DMX<->ArtNet/sACN converters

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Visual Appearance

Pic.1 ArtGate devices appearance

Specifications

DMX512 interfaces	1, 2, 4, 8 or 16
Supported protocols	DMX512, RDM (E1.20), ArtNet (I,II,III,4), sACN (E1.31, draft and release), KiNet (v1 and v2) RTTrPL, HTTP, etc.
DMX data refresh rate	44 Hz default, may be changed if necessary
I/O connectors	Depends on the modification
Max current consumption	0.1 A
Setup	Web-interface
Power supply	~90-250 VAC, 50/60 Hz or Power-over-Ethernet
Fuse	0.1 A
Setup	Web interface, specialized ArtGate software, standard ArtNet tools

Safe operation

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 corrosive liquids.

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

WARNING
THE DEVICE USES HAZARDOUS VOLTAGE AC 230 V

General information

ArtGate is the series of full-featured converters for converting network protocols ArtNet and sACN to light fixtures control protocol DMX512. Through their 1, 2, 4, 8, 12 or 16 DMX ports, LAN interface and Optical port (ArtJet Pro only), the devices transmit and receive DMX512 data streams via Ethernet LAN functioning in 10Base-T or 100Base-T mode (100Base-FX in ArtJet Pro).

Compatibility with ArtNet and sACN protocols enables the use of ArtGate devices in a network of heterogeneous devices from other manufacturers.
As well as the standard broadcast data transfer ArtNet, ArtGate devices also support point-to-point data transfer in the local network or via the Internet. Address settings of the device (name, SubNet, Universe) and network settings (IP address, subnet mask, UDP-port), standard software tools for ArtNet networks, such as DMX Workshop, as well as using the Web-based interface.

Web-interface allows changing advanced settings of ArtGate devices not covered by the ArtNet standard, such as:

DMX signal direction and merge mode for each port;
physical characteristics (timing) of DMX512 signal;
data stream transmission and reception modes in ArtNet network.

In addition, specialized utility software allows advanced users to assign custom MAC address to the Ethernet interface of the device and restore default settings of the device. ArtGate series is powered by AC ~90-250 V, 50/60 Hz, or from Ethernet using the Power-over-Ethernet technology (depends on modification).

Output processing

Depending on Artgate model and selected merge mode, each port can merge up to 2 or 4 network sources. Merged data may be outputted to physical DMX ports, and also may be looped back to Ethernet as new universe.

For merging purposes, 2 different Network universes may be enabled on each port- primary universe (main), and secondary universe (additional). Primary and secondary universe may have different protocols (ArtNet, sACN, etc.). To be merged, universes must be primary or secondary for the affected port.

RDM functionality is available on output port only if ArtNet protocol is selected for primary universe.

Supported merge modes:
-HTP (highest takes precedence),
-LTP (latest takes precedence),
-Auto (last modified takes precedence – intelligent merging mode),
-Priority (for network streams with priority tag, console with the highest priority for a given Universe will be in charge),
-Backup (primary universe takes precedence),
-Trigger (switching between primary and secondary universe data, controlled by one channel in special universe),
-XFade (smooth crossfading between primary and secondary universe data, controlled by one channel in special universe).
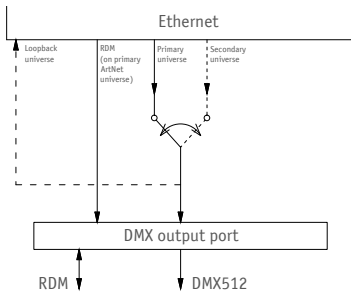
Merging and other output ports procedures for different merge modes are shown in Pic2, Pic3, Pic4, Pic5.
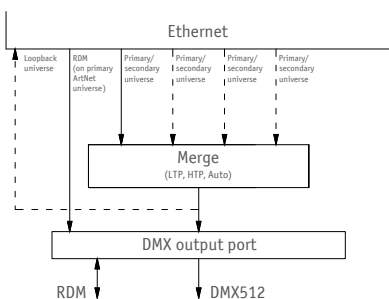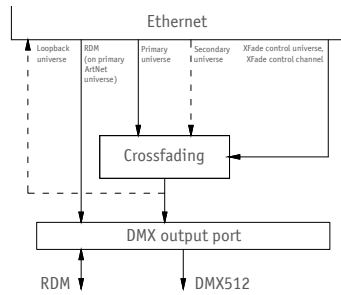

Pic.2 Output port procedures for LTP,HTP, Auto modes
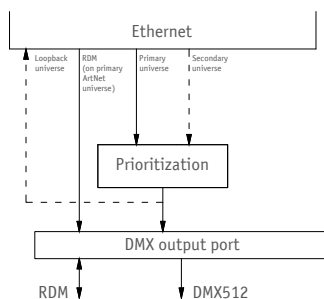
Pic.3 Output port procedures for Priority mode

Pic.4 Output port procedures for Backup mode

Pic.5 Output port procedures for Trigger and XFade modes

Input processing

When configured as input, DMX port of ArtGate can convert DMX512 signal to ArtNet, sACN or other type of universe. Universe type and protocol for input ports is always taken from primary universe settings.
Input port can respond to RDM requests. Each port of one device has it's own RDM UID.

Standalone merger

ArtGate devices may be used as standalone (without permanent Ethernet connection) mergers. When 2 or more input ports are configured with the same universe protocol/number, DMX streams from them can be merged and outputted to another output port which must have the same protocol/number too to provide such feature. This configuration may work even if device is not connected to Ethernet.

Trigger inputs

Some ArtGate models have trigger feature. When trigger is activated, static scene stored in non-volatile memory is recalled and set for all DMX ports. Trigger is activated via "dry contact" inputs, which can be configured for working with normally opened and normally closed sensors (smoke sensors, buttons, etc).

Each Trigger input can be also configured as alarm input. When alarm is activated, device returns to normal work only after power cycle or manual reset, not just input deactivation. By default, static scenes for all triggers are "all channels to 100%". User can set up the custom scene on all used DMX ports and then capture and save the scene for necessary trigger.

Connection types

Ethernet connection

Device is connected to the network via RJ-45. All ArtGate devices have two LEDs to indicate the status of the network connection.
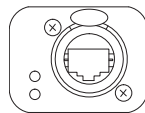

Pic.6 Ethernet connector

If there is no Ethernet connection, both LEDs are off, if network is connected, one LED is constantly on, the other one flashes when data are transmitted and received over the network. 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. Thus, even in case of loss of the new IP address, the device can be access on the network using the original IP address through the web-interface.

Fiber optics connections

ArtJet devices are equipped with 100 Mbit fiber optics port (duplex SC connectors). Fiber optics port works as another network interface, with functionality similar to Ethernet port. When connected both to fiber optics and ethernet, device acts as a network switch/media converter.


100 Base-FX

Tx   Rx
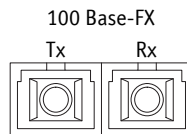
Pic.7 Fiber optics connectors

DMX connections

XLR 5-pin connectors are used to connect external master and slave devices to DMX ports. If necessary, the device can be equipped with XLR three-pin connectors. Each port on the 2 and 4-port devices has 2 connectors — one M connector and one F connector, which allow the port to pass-through the DMX bus. On 8 and 16-port devices and ArtGate Compact, each port has single connector of type F.

Each port is equipped with internal 120 ohms terminator which can be enabled via web interface.

PUSH   OUT 1   IN 1   PUSH   OUT 1   IN 1
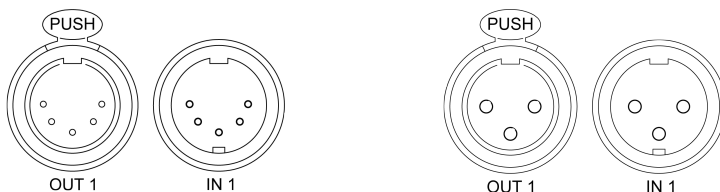
Pic.8 XLR(F) and XLR(M) DMX connectors (5pins/3pins)

Web-settings

ArtGate devices support configuring most of their parameters through the Web interface using HTTP protocol (TCP port 80).

<u>Main settings</u>

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

Pic.9 Main settings

• Indication – switching LED indication modes:

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

• Device name – editable device name (up to 17 characters);

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

• Device status – current state of the device;

• ArtNet4 Net address – network number (0-127, only for ArtNet 4);

• Ports – configuration and status for each 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".

ArtGate Pro
Advanced settings

Main   Advanced   Network   Profiles   Firmware

RDM devices:

```
DMX 1 - 1 devices found
        ManId: 29B7, DevId: A1153B05
DMX 2 - 0 devices found
DMX 3 - 0 devices found
DMX 4 - 0 devices found
DMX 7 - 0 devices found
DMX 8 - 0 devices found
```

[Start discovery]   [Refresh report]

DMX signal timing:

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

DMX line terminator:

Port	1	2	3	4	5	6	7	8
	✓	✓	☐	☐	☐	☐	✓	✓

Options:

Frame integrity mode	ArtNet Subnet-Unv. mode	ArtNet 4 support	sACN Release	KiNet v2
✓	☐	✓	✓	✓

Advanced port settings:

Port	Src. timeout, sec	XFade unv. protocol	XFade unv. number	XFade unv. channel	Loop. unv. protocol	Loop. unv. number
DMX 1	30	Disabled ▼	0	512	ArtNet ▼	80
DMX 2	30	Disabled ▼	0	512	ArtNet ▼	81
DMX 3	10	Disabled ▼	0	512	Disabled ▼	0
DMX 4	10	Disabled ▼	0	512	Disabled ▼	0
DMX 5	10	Disabled ▼	0	512	Disabled ▼	0
DMX 6	10	Disabled ▼	0	512	Disabled ▼	0
DMX 7	10	ArtNet ▼	130	510	Disabled ▼	0
DMX 8	10	ArtNet ▼	130	511	Disabled ▼	0

Triggers/alarms:

Input	Mode	Delay, msec	Action	Status
Trigger 1	Alarm, N.O. ▼	0	[Capture scene]	open
Trigger 2	Trigger, N.O. ▼	5000	[Capture scene]	open

[Save settings]   [Set default]   [Reset]   www.sundrax.com

Pic.10 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 µs
MaB	from 4 to 1000 µs
Data slots	1 to 512
Pause	from 0 to 10000 µs

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

• Triggers/alarms (for ArtGates equipped with Trigger inputs)- setup the mode of Trigger inputs:

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 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 the network settings of the device, click on the link "Network".

Pic.11 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);

• ArtNet 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, authentification is not performed.
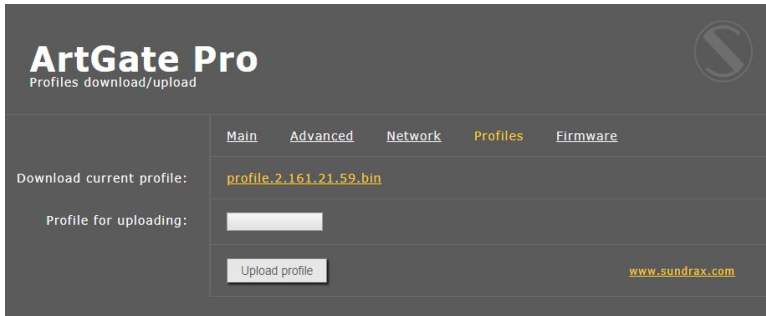
To save the changes in network settings, click "Save settings".
To restore default values of network settings, click "Set default".
To reset to the current saved values of network settings, click "Reset".

Profiles

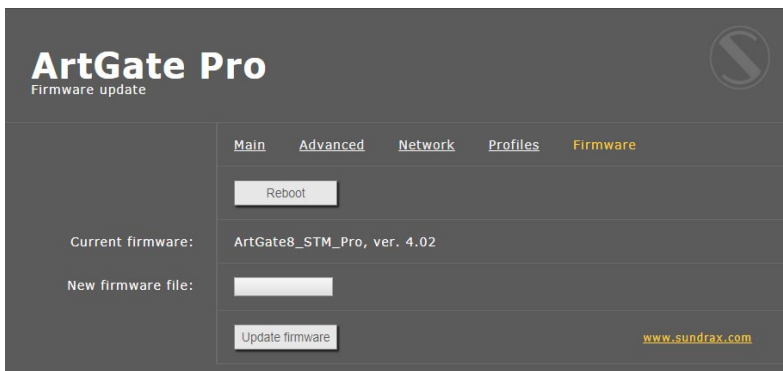For profile operations, click on the link "Profiles".

Pic.12 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

To update firmware of the device, click on the link "Firmware".

Pic.13 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**.

PLEASE NOTE
SELECTING AND UPLOADING ANY OTHER THIRD-PARTY FILE MAY CAUSE DEVICE MALFUNCTION

Getting started

1. Connect all DMX cables to necessary DMX port connectors.

2. Connect Ethernet cable to the device.

3. In ArtGate PRO devices connect the power cable.

4. Connect the power cable plug to a power outlet.

5. In ArtGate PRO devices 12DE and 16DE, turn the power switch on. After few seconds, port status LEDs will indicate the state and direction of the port. Also, few seconds later Ethernet status LED must turn on.

6. Open device's web-interface on the computer connected to the same network as the ArtGate device.

7. Open the Network Settings tab.

8. IP field will display the address of the device, Subnet field will display the network mask. If necessary, fill the IP and Subnet fields for the required network settings (by default, devices are on IP subnet 2.x.x.x and Subnet 255.0.0.0). Click "Save settings" so that the new settings take effect.

9. Configure other settings of the device: direction of ports, Subnet and Universe for each port, etc. If necessary, edit the name of the device and its network settings, then click "Save settings" so that the new settings take effect.

10. Status LEDs of DMX ports will indicate the selected port's configuration and its current state. The device is ready for operation.

Operation

ArtGate devices start their normal operation in a few seconds after they have been powered up. Device always operates based on last saved settings. Viewing ArtGate's 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.

Technical maintenance

Maintenance, 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.

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