

MDG

User Guide



D-Verter

(Revision A/b, November 2017, © MDG Fog Generators Ltd)



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USER GUIDE

Congratulations on your purchase of the **D-Verter™**. These original instructions describe the use of this Fog Input/Output Mechanical Splitter.

MDG manufactures fog generators since 1980. Our fog systems have been used in numerous applications including firefighters' training, the motion picture industry, theatres, theme parks, flight simulators, and also educational, worship and touring venues throughout the world. With proper care, we are confident your MDG **D-Verter™** will provide you with years of quality service.

HOW TO READ THIS USER GUIDE



WARNING and **CAUTION** are used throughout this manual to forewarn of possible danger to the users if precautions are not observed. As is customary in military and some commercial manuals, the precautions will always precede the steps to which it refers so that the users will be aware of any potential danger before performing the task.



WARNING and **CAUTION** labels are key equipment parts. Do not remove, change or cover these labels. If the labels are not readable, contact **MDG Fog Generators Ltd.**

BOLD TEXT: Contains important information, cautionary steps and warnings that should be read and understood prior to installing the unit.

BOLD and ITALIC TEXT: *pertains to product names and trademarks, proprietary names and products made by MDG Fog Generators Ltd.*

Please read the following instructions carefully and completely before installing, and using this digital fan.

QUALIFIED PERSONNEL

MDG Fog Generators Ltd systems will perform as designed but are to be installed, operated, and serviced by trained personnel. Installation, operation and servicing of this equipment require trained personnel with technical skills in electrical theory and fluid dynamics.



CAUTION

This equipment must always be disconnected from its power source during service or when replacing parts.

This manual is not a substitute for qualified technicians or local authorities on electricity, gas, fluid, or engineering, and therefore does not supersede, amend or void local safety installation practices. Please refer to local authorities for further information.



CAUTION

This equipment is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



CAUTION

Children should be supervised to ensure that they do not play with the appliance

NEED A LITTLE HELP?

At MDG, we try our best to provide you with complete information for our products. Despite it all, sometimes, a little more is required due to the specifics of your project and installation. We're looking forward to go that extra mile for you.

Contact us:

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Please note that our business hours are from **08h30 to 12h00** and from **12h30 to 17h00** (8:30AM to 12:00PM and 12:30PM 5:00PM), **Eastern (GMT -5)**.

COPYRIGHT NOTICE

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BASIC DESCRIPTION

The MDG **D-Verter™** is a DMX pneumatic device which mechanically either, splits a single source of fog into two distinct outputs, merges two separate sources of fog into a single output, or acts as a fog output gate.

Low power consumption (only 50 W), controllable via DMX or RDM, this mechanical Fog Input/Output Splitter can be used anywhere due to its universal switching power supply (100-250 VAC, 50/60 Hz).

Its simple and efficient multi-level User Interface, accessible from the backlit LCD panel, allows for a gradual switch between local mode and most common protocols: DMX-512-A USITT and RDM ANSI E1.20.

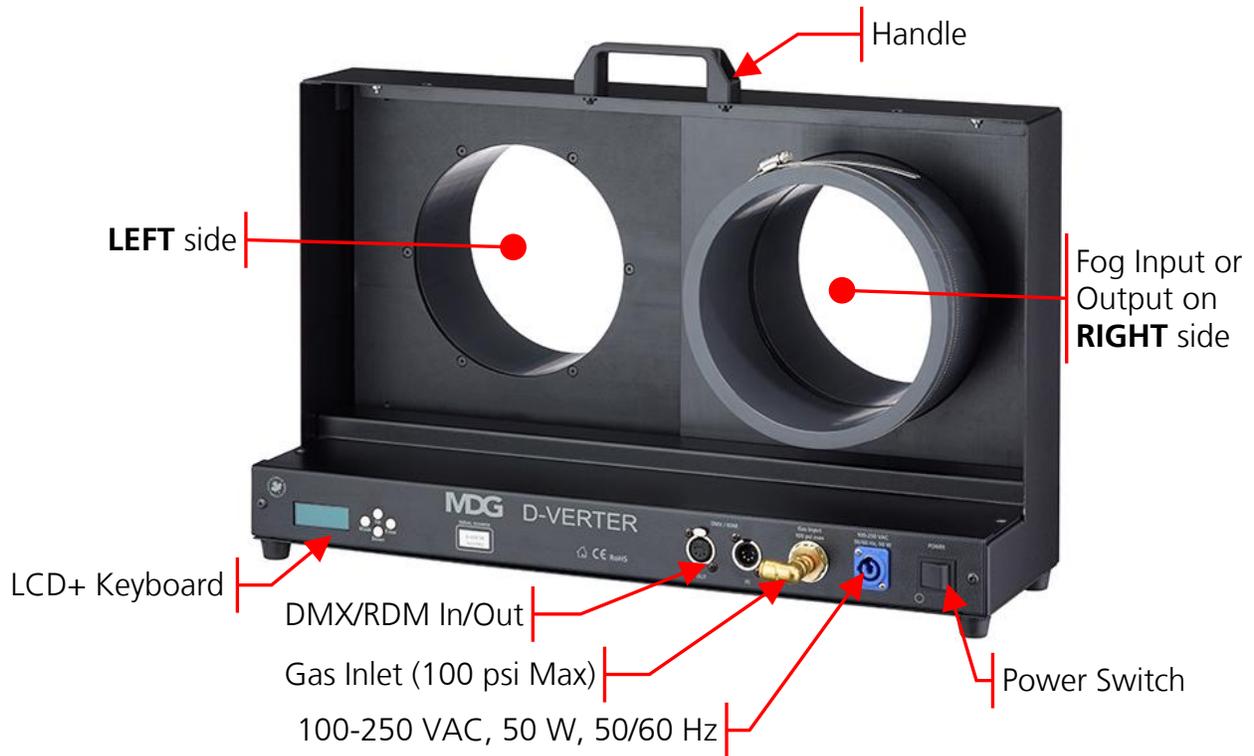


WARNING

- When not in use **ALWAYS** switch off the power switch located on the front panel, or **unplug** the appliance.
- Never install above people.

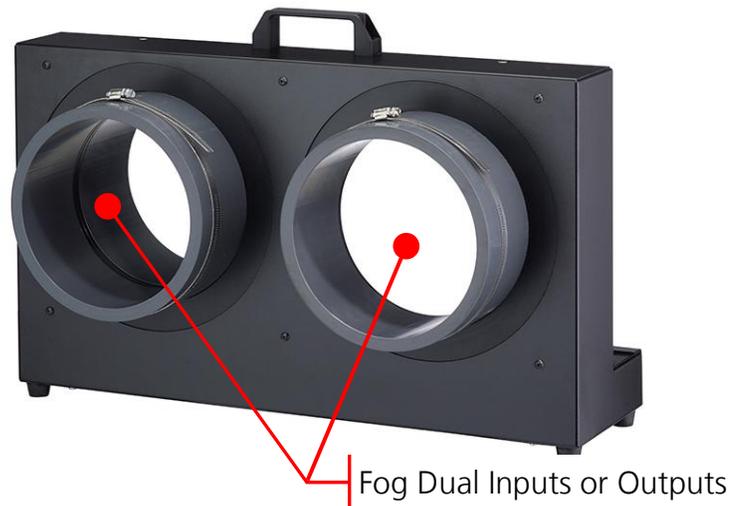
WORKING WITH THE D-VERTER™

The MDG **D-Verter™** is quite easy to operate and requires no preventive maintenance. It should only be used indoor.



The **D-Verter** can be used in two modes:

- Dual output: Control panel must be set facing towards the fog generator
- Dual input: Control panel must be set facing away from the fog generator



EXAMPLES OF INSTALLATION

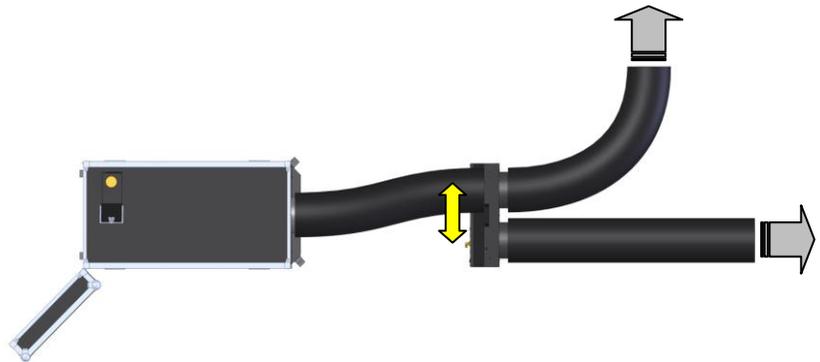
One ICE FOG Q / Gate

The D-Verter acts as a gate. The user can stabilize the output before activating the gate, or stops rapidly the dispersion.



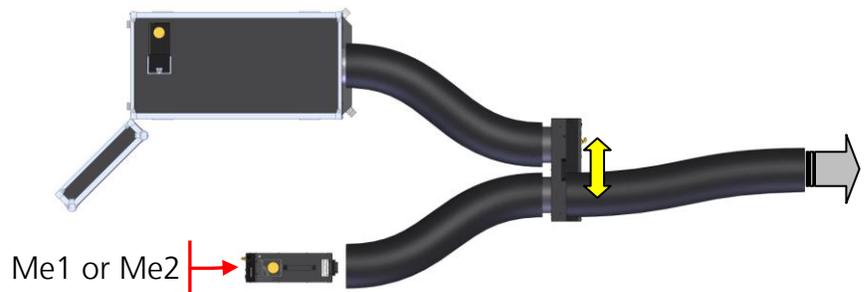
One ICE FOG Q / Dual output

This configuration allows setting two different output locations with the same ICE FOG Q.



Two Fog Generators / Single output

In this configuration, the D-Verter is used to disperse, at the same fog output, two types of fog effects (low Lying Fog, and Fog).



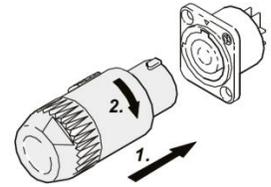
STARTING THE D-VERTER

Connect the data wiring (DMX or RDM), if you want to use a remote control.

Plug the powerCON connector (100–250 VAC, 50/60 Hz, 50 W).

Connect the gas line and set the pressure between 60 psi (414 kPa) to 100 psi (689 kPa) max

Switch On the power.



The MDG **D-Verter**[™] will display during two (2) seconds, the following message:

D-Verter by MDG

V: x.xx – F: y.yyy

where 'x.xx' is the version of your **D-Verter**, and 'y.yyy' is the firmware of the program.

The program will load the configuration parameters, saved in the EEPROM memory. These parameters are saved each time the program is modifying them (User or Configuration).

Finally, the screen will display the menu.

THE KEYBOARD

The user can scroll in the menu by using the buttons of the keyboard:

'Down' moves the selection to the next menu, or decreases a data value.

- When at the end of a list, the program moves back to the first item of this list.
- If the selected menu is a **data input menu**, keeping this key pressed will decrease the value more rapidly.
- In a **data input menu**, when the value reaches its minimum value, the program continues with the maximum value.

'Up' moves the selection to the previous menu, or increase a data value.

- If the item is the first of a menu, the program moves the selection to the last item of that menu.
- If the selected menu is a **data input menu**, keeping this key pressed will increase the value more rapidly.
- In a **data input menu**, when the value reaches its maximum value, the program continues with the minimum value.

'Mode' moves the last selection to the upper level

- This key has no effect in the first level, except when the length of value is too long. If the displayed value starts with a '**←**', this key will scroll the value to the left.
- In a **data input menu**, pressing this key permits to exit the menu without changing any value (escape).

'Enter' confirms a selection or data value.

- This key has no effect in the first level, except when the length of value is too long. If the displayed value ends with a '**→**', this key will scroll the value to the right.
- In a **toggle menu**, this key confirms the selection and moves the cursor back to the upper level menu.
- In a **data input menu**, this key confirms the value of the data and moves the cursor back to the upper level menu.

LCD SAVER

The program can automatically switch off the LCD screen (menu display and backlight) if there is no keyboard activity. The user can choose between a 30 second and a 2 minute delay in the Settings Menu (« SETTINGS ► LCD SAVER »).

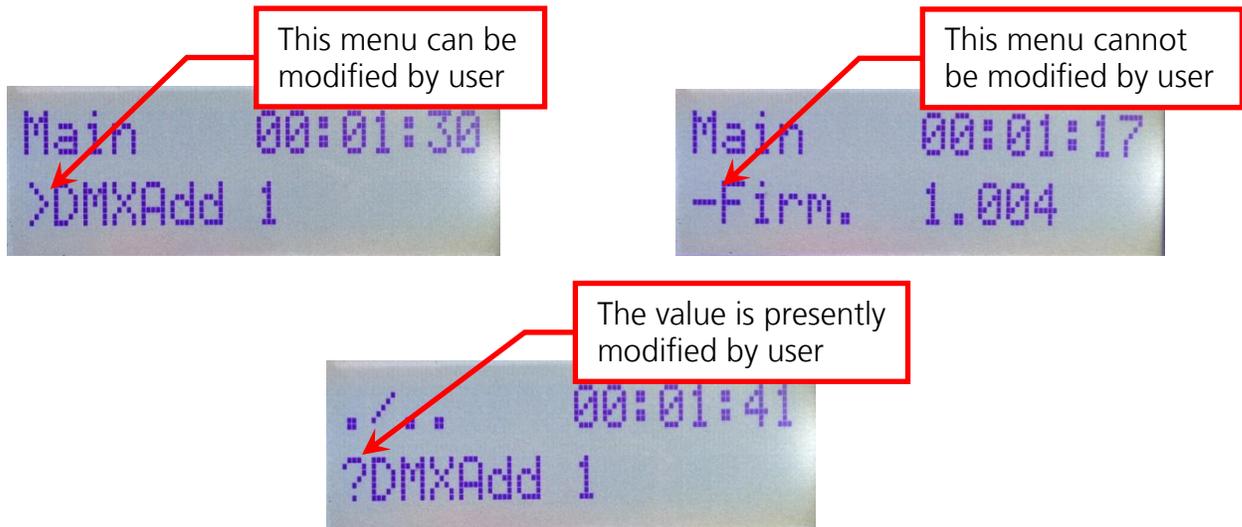
When the LCD Saver is activated, just press any key of the keyboard to re-activate the LCD screen functions.

The user can also deactivate the LCD saver by selecting the OFF option.

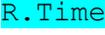
THE MENU

The menu is refreshed every second.

- Items preceded by the « - » character are state messages or parameters, updated by the program. The user cannot modify them.
- Items preceded by the « > » character are control parameters.
- The user, within specific ranges or choices, can **MODIFY** them. In user input mode, the value or the choice is preceded with the « ? » character.



The tree menu architecture is explained below. Items highlighted in blue are state menu (), and those highlighted in yellow are control menu ().

 Output	 ---- RIGHT LEFT	Output position - Right side - Left side
 DMXAdd	 YYY	DMX Address (1 to 512)
 Perso	 ---- NORMAL REVERSE	Personality (Can be set by RDM) - DMX < 128 for RIGHT side, DMX ≥ 128 for LEFT side - DMX < 128 for LEFT side, DMX ≥ 128 for RIGHT side
 Comm.	 ---- AUTO LOCAL DMX	Communication toggle. The MDG D-Verter™ is: - controlled by DMX/RDM if a signal is present or locally if there is no signal - controlled by the keyboard ONLY - controlled by DMX/RDM ONLY
 Firm.	 x.xx	Program Firmware
 DevLab	 YYYYYY	RDM Device Name (Can only be set by RDM)
 DevUID	 YYYYYY	RDM Device ID
 Saver	 ---- 30 s 2 mn OFF	LCD Saver (Can be set by RDM) - LCD saver is activated after 30 s - LCD saver is activated after 2 min - LCD Saver is Off
 R.Time	 YYYYYY	Run Times (Decimal hours)

OPERATING INSTRUCTIONS

The MDG **D-Verter**[™] can be controlled either locally, with the keyboard, via DMX (see *DMX control and RDM Control*). This paragraph focuses on **local control**.

Powered up, the control program configures the Input/Output and loads the configuration parameters, saved in the EEPROM memory.

At this point, the MDG **D-Verter**[™] switches to stand-by mode, and most of the electronic controls are off.

Scroll to the **Output** menu.

- Normally, at start-up (no DMX signal), you are on the **right** side output.
- Switch to **left**, to force the output to toggle on the other side.

When switching from one side to the other, be very careful from being hit by any moving part. Reduce the pressure input if necessary.

DMX CONTROL

The MDG **D-Verter™** can be controlled via a DMX512-A USITT standard protocol.



WARNING

Activating the «**DMX**» mode («**Comm. ▶ DMX**»), controls the MDG **D-Verter™** only by DMX signal. If the DMX wire is **unplugged** or DMX **signal is lost**, the MDG **D-Verter™** will stop.

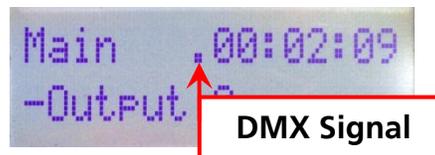
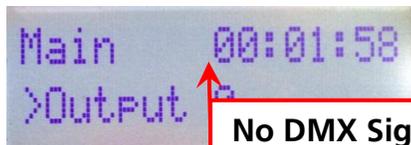
Activating the «**AUTO**» mode («**Comm. ▶ AUTO**»), controls MDG **D-Verter™** by DMX, only if there is a signal. If the DMX wire is **unplugged** or DMX **signal is lost**, the **MDG D-Verter™** keeps the last DMX values.



WARNING

In «**AUTO Mode**», DMX commands always take precedence over Local commands.

The MDG **D-Verter™** provides a simple way to check if there is DMX signal:



The user can change the DMX Start Address in the Interface Menu («**DMX Add**»), and choose any value between 1 and 512 (512, last DMX channel).

The **D-Verter** DMX interface uses one (1) channel, but has two personalities:

- Personality NORMAL
 - DMX < 128 0 - 50% the fog input (or output) is aligned to a fog output (or input) on **RIGHT** side
 - DMX value ≥ 128 50 - 100% the fog input (or output) switches to the **LEFT** side fog output (or input).
- Personality REVERSE
 - DMX < 128 0 - 50% the fog input (or output) is aligned to a fog output (or input) on **LEFT** side
 - DMX value ≥ 128 50 - 100% the fog input (or output) switches to the **RIGHT** side fog output (or input).

These channels have the same behaviour that the menus of the local interface (see **Operating instructions** paragraph).

RDM CONTROL

The MDG ***D-Verter™*** can be controlled via a RDM ANSI E1.20 protocol, an intelligent bi-directional communication utilizing the DMX512 data link.

RDM permits a console or other controlling device to discover and then configure, monitor, and manage intermediate and end-devices connected through a DMX512 network. RDM provides for intelligent control of devices on a DMX512 network, which has not been previously available outside of proprietary networks

RDM Control has the same functionalities than the DMX Control (see *DMX Control*) with bi-directional functions allowing the user to read or write specific functions.

The RDM supported parameters implemented in the MDG **D-Verter™** are summarized in the following table.

RDM Parameter ID's	Value	GET Allowed	SET Allowed	Comments
DISC_UNIQUE_BRANCH	0x0001			
DISC_MUTE	0x0002			
DISC_UN_MUTE	0x0003			
QUEUED_MESSAGE	0x0020	✓		
STATUS_MESSAGES	0x0030	✓		
SUPPORTED_PARAMETERS	0x0050	✓		
PARAMETER_DESCRIPTION	0x0051	✓		
DEVICE_INFO	0x0060	✓		
PRODUCT_DETAIL_ID_LIST	0x0070	✓		Other (0x7FFF)
DEVICE_MODEL_DESCRIPTION	0x0080	✓		Other (0x7FFF)
MANUFACTURER_LABEL	0x0081	✓		MDG Fog Generators Ltd
DEVICE_LABEL	0x0082	✓	✓	
SOFTWARE_VERSION_LABEL	0x00C0	✓		
DMX_PERSONALITY	0x00E0	✓	✓	2
DMX_PERSONALITY_DESCRIPTION	0x00E1	✓		D-Verter (x1) D-Verter Reverse (x1)
DMX_START_ADDRESS	0x00F0	✓	✓	1 to 512
SLOT_INFO	0x0120	✓		
SLOT_DESCRIPTION	0x0121	✓		
DEFAULT_SLOT_VALUE	0x0122	✓		
IDENTIFY_DEVICE	0x1000	✓	✓	LCD flashes
RESET_DEVICE	0x1001		✓	0x01/0xFF Reset (Warm)
MDG_LCD_SAVER	0x8004	✓	✓	Unsigned Byte (0=30 s, 1=2 min, 2=Off)
MDG_COMM	0x8005	✓	✓	Unsigned Byte (0=AUTO, 1=LOCAL, 2=DMX)

Table 1: RDM Supported Parameters.

TROUBLESHOOTING

Contact MDG, if symptoms are not listed, or if the provided solutions fail to resolve the issue.

Table 2: Symptoms and Solutions

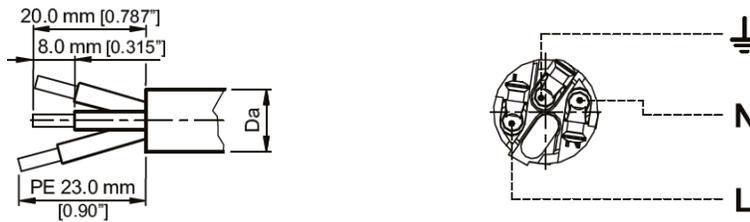
Symptoms	Probable Causes and Suggested Actions
The MDG D-Verter™ does not switch on	<ul style="list-style-type: none"> • Verify that AC power cord is properly connected on both ends. • Check the fuse or the breakers of your VAC entry. The wattage of the MDG D-Verter is around 50 W. • Verify the AC voltage on the power cord. 100-250 VAC. • Switch ON the Main
The MDG D-Verter™ does not move from one side to the other side	<ul style="list-style-type: none"> • Verify the gas bottle is opened • Verify you have enough pressure (at least 50 psi). • Verify the communication mode «Comm.» You cannot control the MDG D-Verter locally if you are in DMX mode, and vice-versa. • If you are in DMX mode: <ul style="list-style-type: none"> • Verify the cable • Verify the DMX address • Verify the channels
LCD displays strange letters or does not seem to work normally	<p>In some conditions (Radio transmission or static discharges), the LCD may lose its settings. The MDG D-Verter is still working, but the LCD displays strange or no characters:</p> <ul style="list-style-type: none"> • Wait 30 seconds without touching any key, • Press any key <p>If the menu does not reappear, restart the MDG D-Verter.</p> <p>Please contact the Service if this problem persists.</p>

TECHNICAL DATASHEET

ELECTRICAL REQUIREMENTS

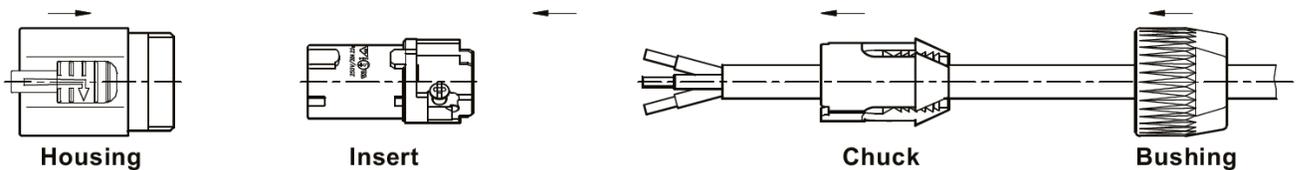
If the supply cord is damaged, it must be replaced by a special cord or assembly available from the manufacturer, or its distributing / service agent.

- Operating voltage: 100-250 VAC, single phase. 50/60 Hz, 50 W.
- Ground / Earth connection **REQUIRED**.
- Cable Preparation



$$Da = 9.5 [0.374\"] - 15.0 [0.59\"]$$

- Cable Assembly



1. Put bushing and chuck onto the cable
2. Prepare cable as shown above
3. Insert the wire into the terminals and fasten the clamping device by a flat screw driver
4. Push insert and chuck into housing (pay attention to the guiding keyway!)
5. Fasten bushing by means of a fork wrench $\frac{3}{4}$ ", min. Torque 2.5 Nm (1.8 lb-ft)

CABLE REQUIREMENTS

- Power input: 1 mm (18 AWG), 3-wire, 90 °C copper, CE UL/CSA compliant cable
- DMX/RDM data: Dual twisted pair 0.75 mm (22 AWG) + shield, XLR-5 type connector, CE UL/CSA compliant cable.

GAS REQUIREMENTS

- 3/8 inch pneumatic tubing.
- Clean compressed Air (filtered, dry and oil less) or Inert Gas (CO₂, N₂ industrial grade)
- Pressure from 60 psi (414 kPa) to 100 psi (689 kPa) max

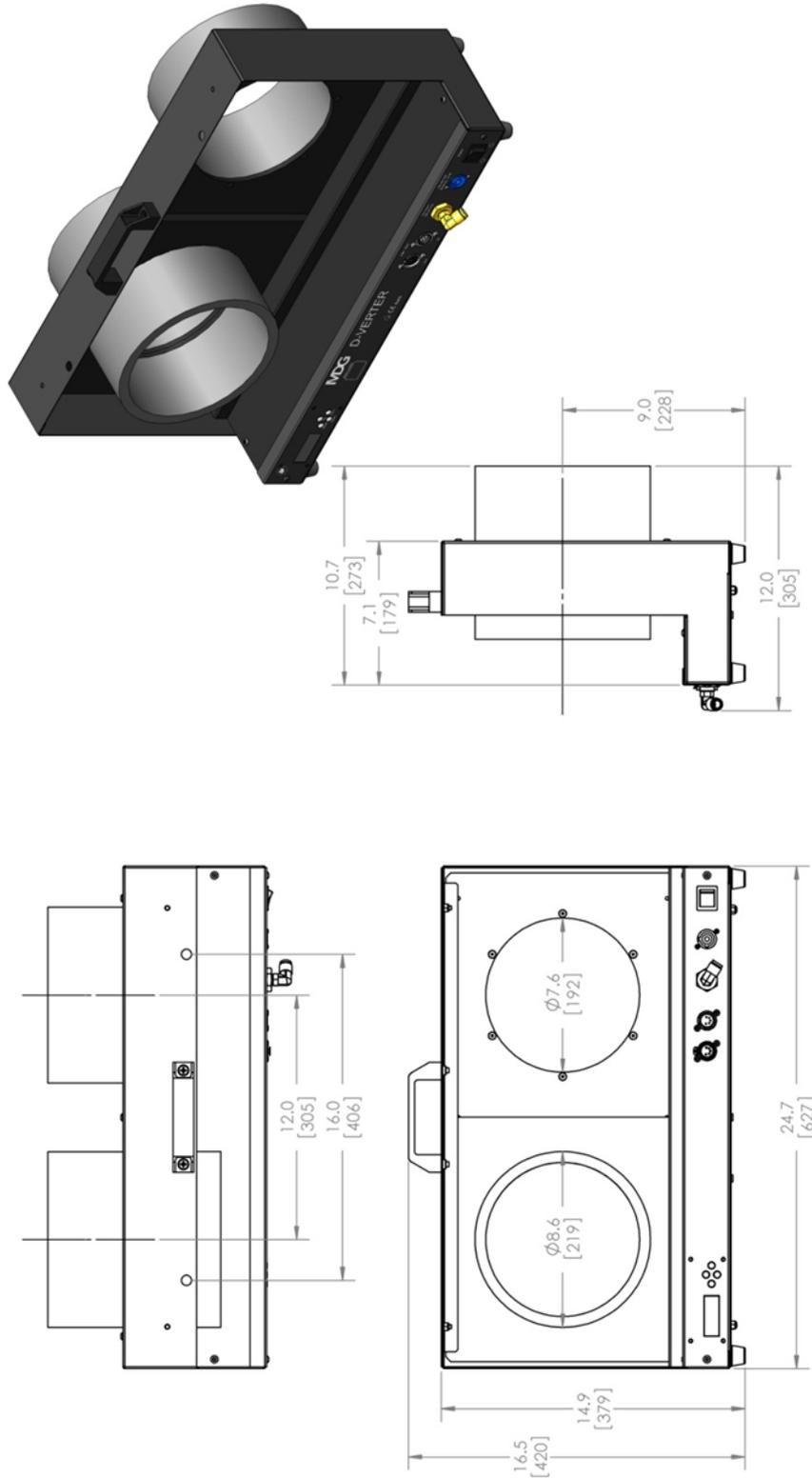
ENVIRONMENTAL REQUIREMENTS

- Indoor use.
- Dry room conditions, 90 % relative humidity @ 50 °C (122 °F) , non-condensing
- 0 °C to 50 °C (32 °F to 122 °F) operating temperature
- Dust-free space
- Storage conditions: -40 °C to 60 °C (-40 °F to 160 °F), 80 % relative humidity @ 60 °C (140 °F).

MECHANICAL DATA

- 8" Ø nominal exhaust (20.3cm Ø) / 8.6" OD (21.9 cm) exhaust
Minimum 17 inch (43.2 cm) operation insertion
- Total net weight: 6.8 kg (15 lbs)
- See next page for dimensions

DIMENSIONS



WARRANTY

When installed and operated as recommended, **MDG Fog Generators Ltd** guarantees that this product will remain free of defects in parts and labour for a period of two (2) years from the moment it is delivered. This warranty does not apply if the product has been modified without our written authorization, or repaired without a written authorization from MDG or one of its authorized service centres, or if it is used under conditions for which it has not been designed. **MDG Fog Generators Ltd** is not responsible for any damages resulting from a faulty installation or from abusive use of the product.

If any device is found unsatisfactory under the terms of this warranty, **MDG Fog Generators Ltd** will repair or replace it free of all charges, except transportation costs.

This warranty applies only to the product itself and **MDG Fog Generators Ltd** declines responsibility for any losses, costs, or damages resulting from its use.

MDG Fog Generators Ltd shall not be liable for consequential damage in case of any failure to meet the conditions of any warranty or shipping schedule, nor will claims for labour, loss of profits, repairs, or other expenses incidental to replacement be allowed.

The repair or replacement of the product, by **MDG Fog Generators Ltd** shall constitute fulfilment of all obligations to the purchaser.

No other guarantees or warranties, expressed or implied, are made by **MDG Fog Generators Ltd** in connection with its products. This warranty is non-transferable and applies to the original purchaser only.

To obtain satisfaction under the terms of this warranty, contact your local sales office, and we will be pleased to help you.

DECLARATION OF CONFORMITY

