DVI Splitter Amplifier
DS01

User's Manual

Preliminary version

Contents

1. Introduction

This manual describes the safety precautions, specification, operation, installation of the Bigtide DS01 DVI Splitter.

The BigtideDS01 is a DVI Splitter with one input and four outputs.

The DS01 distributes a single DVI-D input to four DVI-D outputs.

The DS01 has DDC functions by itself.

The DS01 is able to switch DDC automatically according to the preset priority.

The DS01 drives each DVI-D up to 15m at a resolution of 1600×1200@60Hz or

1920×1200@60Hz (24AWG STP).

The DS01 is able to pass the eye diagram testing.

The DS01 is powered by 100～240VAC power supply.

The DS01 can be mounted in a rack, in a drawer, on a wall, under a desk, or set on a tabletop. It can also be used side by side.

The unit is engineered to meet all rigorous safety requirements, including UL, CUL, CE, CCC, and to meet all rigorous EMC requirements.

The unit can fulfill QR Med6 requirements and RoHS Compliance.

2. Safety precautions

Caution

Read instructions

Read and understand all safety and operating instructions before using the device.

Follow warnings

Follow all warning and instruct ions marked on the device or in the user information.

Regular maintenance are recommended

Correct and safe operation of the DVI splitter is dependent on proper transport, storage, installation and assembly, as well as careful operation and maintenance.

For the sake of safety, the following precautions must be observed:

Danger

There is a danger to life if the warning information is not observed. Severe personal injury or damage to property may occur.

1. **Do not open the unit yourself, because certain components inside the units are at high- voltage.**
2. **Only use a perfect power supply cable, because a damaged power supply cable may result in a fire or electric shock.**
3. **Only use the same type of fuse 3.15A/250V**
4. **Do not insert any objects into the housing, because objects inserted into the housing may result in damage to the unit.**
5. **Do not expose the unit to rain or excessive moisture.**
6. **Do not hurt yourself when moving the unit.**

Warning

Incorrect installation may result in extensive damage to property. Installation should be carried out by trained personnel.

1. When installing your electrical system with our products, please observe the safety requirements of EN60601-1-1 (IEC601-1-1).
2. Take appropriate measures to particularly ensure that discharge currents remain below the required limits.
   Appropriate measures:
   - Disconnecting devices for signal input and output unit.
   - Use of a safety transformer.
   - Use of additional PE conductor.
3. Only use the signal cables and interface cables specified by the manufacturers for the installation
4. Use power cords with a PE contact.
   Only insert into sockets with a PE contact.
5. Provide sufficient heat dissipation
   Slots are provided at the sides of the housing.
   These slots are provided to prevent overheating of sensitive components inside.
   These slots must never be blocked by other objects.
6. The permissible ambient temperature range (0ºC to 45ºC) must not be violated.
7. Take care when transporting! Use the original packaging!
8. The device could be sent back to the manufacturer for recycling or proper disposal after their useful lives. Alternatively the device shall be disposed in accordance with national laws after their useful lives.

3. Technical information

3.1 Power supply

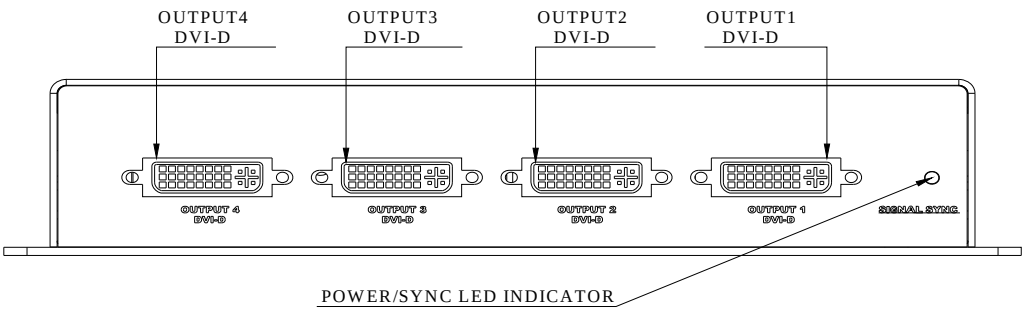
3.1.1 AC power input

Input Voltage	: AC100-240 V± 10%
Current (max)	: 0.35A (without AC power loop through output) : 2A (with AC power loop through output)
Frequency	: 50/60Hz ± 3Hz
Power Consumption	: <20W (without AC power loop through output)

3.1.2 AC power loop through output

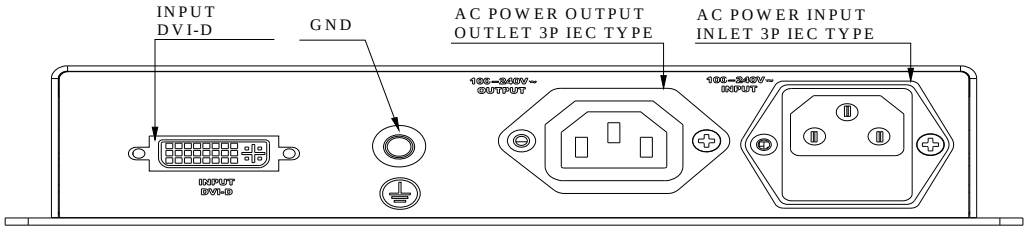
Output Voltage	: AC100-240 V± 10% (Equal to input)
Current (max)	: 1.65A
Frequency	: 50/60Hz ± 3Hz (Equal to input)

3.2 Signal interface



FRONT PANEL

Figure 1



REAR PANEL

Figure 2

3.2.1 Signal specifications

Item		SPEC
Digital Signal Input	DVI-D Input	DVI-Digital DDC via DVI
Digital Signal Output	DVI-D Output	DVI-Digital DDC via DVI

3.2.2 DVI output +5V Pin 14 load capability

+5V load capability: Max. current 600mA for each output DVI port.

3.2.3 Power/Sync LED indicator

Power input on without DVI digital sync input	LED light and color orange
Power input on with DVI digital sync input	LED light and color green
Power input off	LED extinguished

3.3 Product features

Item		Specification
		Digital Input
Input Signals	Horizontal frequency	30kHz -82kHz
	Vertical frequency	50.0Hz - 85.0 Hz (Non-Interlaced)
	Video Signal	Digital Video
	Sync. Signal	TMDS
	Pixel Clock	25.0MHz-165.0MHz
	Maximum data rate	1.65Gbps
	Input connector	DVI-D Connector
Output Signals	Horizontal frequency	30kHz -82kHz
	Vertical frequency	50.0Hz - 85.0 Hz (Non-Interlaced)
	Video Signal	Digital Video
	Sync. Signal	TMDS
	Pixel Clock	25.0MHz-165.0MHz
	Maximum Data Rate	1.65Gbps
	Output connectors	DVI-D Connectors
	Transmission distance	DVI-D: Over 15m at 1600×1200@60Hz (24AWG STP)
Preset Digital Timings of The Unit		36
DDC Switching automatically	Priority	Highest OUTPUT1→OUTPUT2→OUTPUT3→ OUTPUT4→The UNIT Lowest
Regulations	Safety	CCC, CE, CB
	EMC	CISPR 22 Class B, FCC part 15 Class B

	Plug and Play	VESA DDC2B
Environment Condition	Operating temperature	0 ~ 45 degree C
	Operating humidity	20% ~ 85% (without condensation)
Power Supply	Input Voltage	AC 100-240V 50/60HZ ≤0.35A (without AC power loop through output) AC 100-240V 50/60HZ ≤2A (with AC power loop through output)
	Power Consumption	<20W (without AC power loop through output)
	Input Connector	IEC320 C14
	Output Voltage	AC100-240V, 50 / 60Hz; ≤1.65A
	Output Connector	IEC320 C13
Accessories	DVI-D Signal Cable	2.0 m
	AC Power cord (Extension Type)	3.0 m
	Green-yellow PE cable	3.0 m; 4 mm2
	Mounting brackets and Screws	All kinds for assembling the unit.
	User's manual	English and Chinese (CD)

3.4 Environment conditions and reliability

3.4.1 Operation

Ambient temperature range	0 -- +45℃
Temperature gradient	Max. 6℃/h, no condensation
Humidity	20%～85%
Atmospheric pressure	1060 – 700 hPa (0 -- 3048m)

3.4.2 Transport and storage (packed)

Ambient temperature range	-20 -- +60℃
Temperature gradient	Max. 10℃/h, no condensation
Humidity	10%～95%

3.4.3 Mechanical requirements

Packed unit

Shock	Class 2M2 according to IEC721
Vibration	Class 2 according to IEC68-2

3.4.4 Drop Test (packed)

According to IEC68-2

	Position	**Height**
Corner	**1**	**100cm**
Edge	**3,2,4**	**100cm**
Surfaces	**A,B,C,D**	**100cm**
	E	**100cm**
	F	**100cm**
(Cushion should be changed to new one.)		
Corner	**5**	**100cm**
Edge	**6,7**	**100cm**

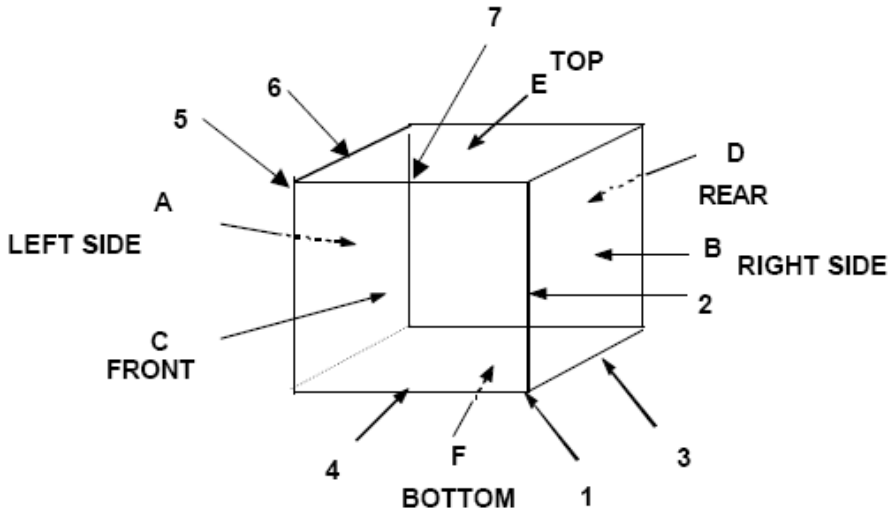


Figure 3

3.4.5 Safety specifications

Safety standards	EN60601
Approvals	CCC, CB
Conformity	CE

3.4.6 Electromagnetic compatibility

EMC	IEC60601-1-2 CISPR22 /24 CLASS B FCC Part 15 CLASS B

3.4.7 MTBF

100000 hours

3.4.8 ROHS

ROHS Compliance

3.5 MECHANICAL SPECIFICATIONS

3.5.1 Outline dimensions & weight

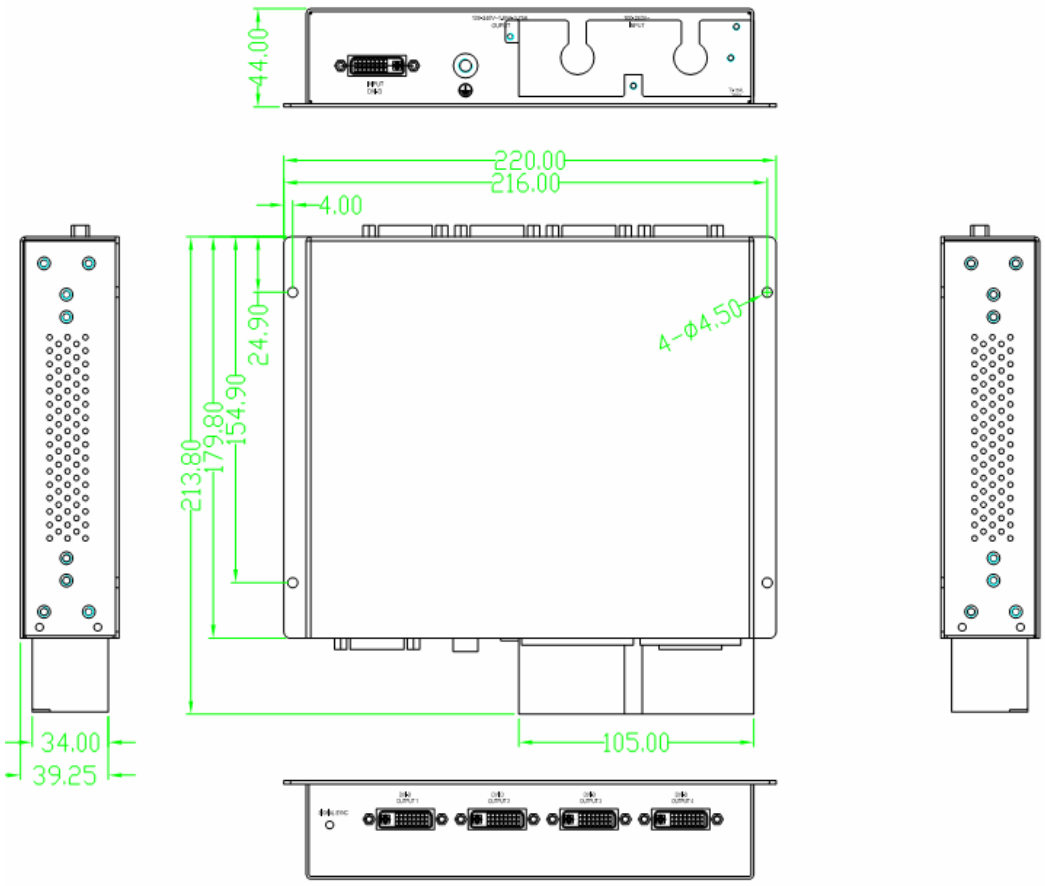


Figure 4

Item	Set	
Size of set	Width	220.00mm
	Depth	179.80mm
	Height	44.00mm
Housing components	Aluminum	
Ventilation slots	In two sides.	
Connection panel	At rear and front	
Net weight	Approximately 2.4 Kg	

3.5.2 Package dimension and weight

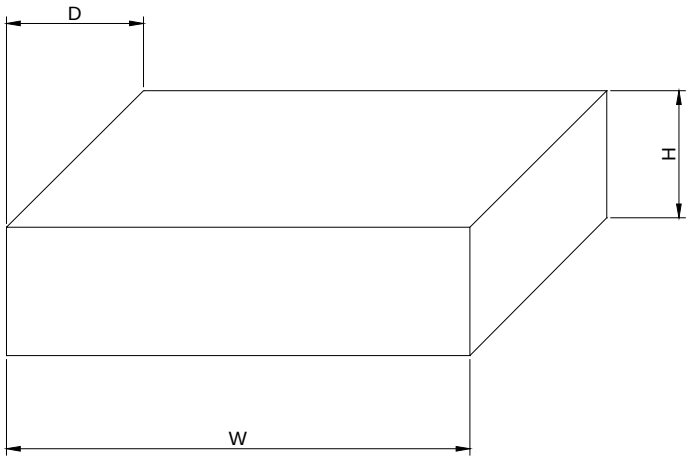


Figure 5

Outer size of box	Width (mm)	450mm
	Depth (mm)	350mm
	Height (mm)	100mm
Gross weight	Approximately 5.0 Kg	

3.5.3 Mounting brackets and screws

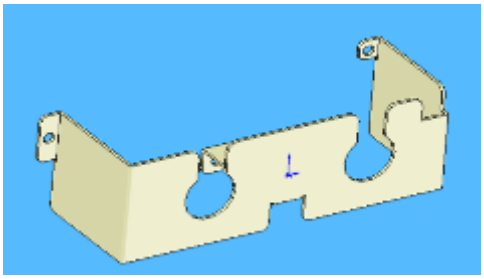


Figure 6
Power card bracket

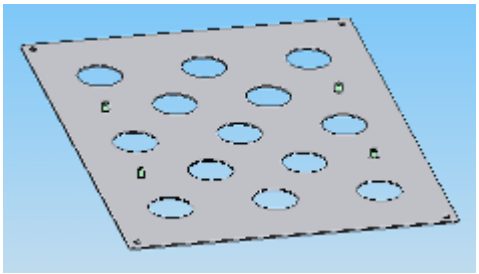


Figure 7
Bottom mounting bracket

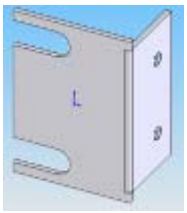


Figure 8
Side mounting bracket

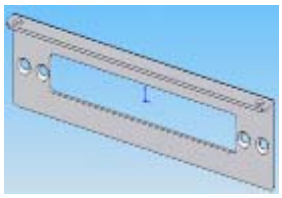


Figure 9
Side overlap mounting bracket

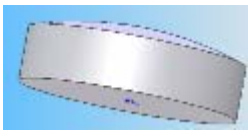


Figure 10
Rubber foot

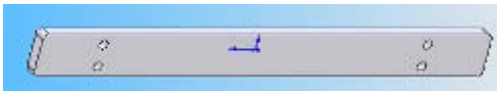


Figure 11
Connecting bracket

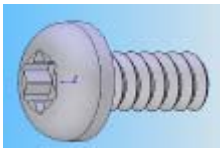


Figure 12
Machine screw M4×6 and M3×6

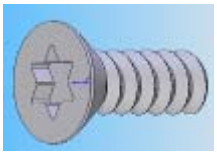


Figure 13
Machine screw cut-M4×8

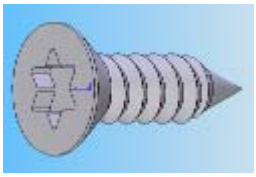


Figure 14
Self tapping screw M4×10

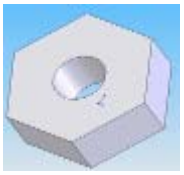


Figure 15
Nut M4

4. Connections and start-up

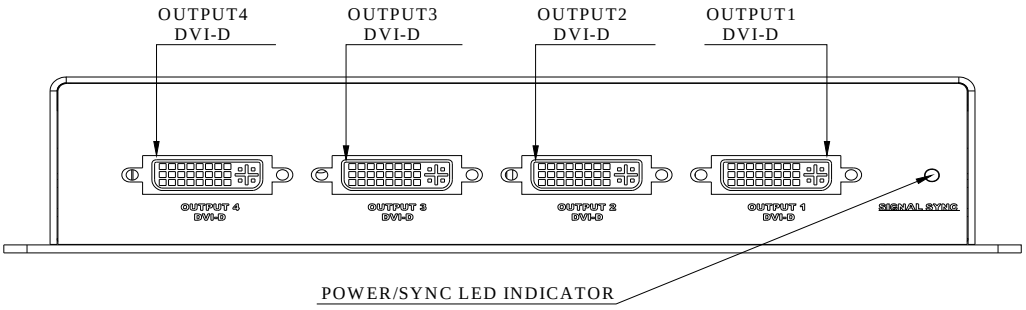
Caution

In order to ensure safety operation of the equipment, close attention must be paid to the information contained in this User's Manual as well as the warnings in section2 "safety precaution".

DDC switching

1. The unit has DDC functions by itself.
2. DDC switching priority:
   Highest Output1→Output2→Output3→Output4→Device itself **Lowest**

Front panel



FRONT PANEL

Figure 16

Output DVI-D female connector

The output DVI-D signal with a resolution of 1600×1200@60Hz or 1920×1200@60Hz can be driven up to 15m over DVI cable made of 24 AWG STP cable.

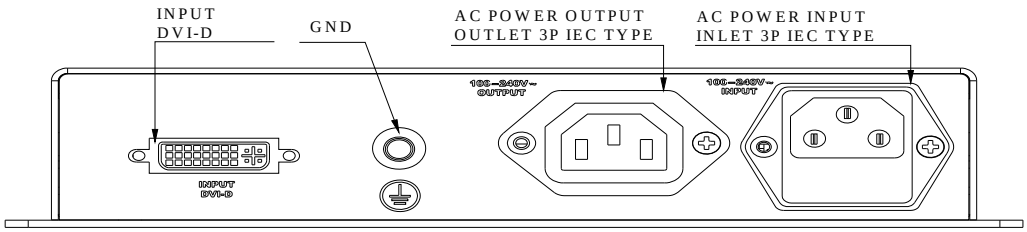
Power/sync LED indicator

Power input on without DVI digital sync input: LED light and color orange
Power input on with DVI digital sync input: LED light and color green
Power input off: LED extinguished

Note

1. The transmission distance varies greatly depending on the signal resolution, the type of DVI Cable, graphic card, and display used in the system.
2. Although DVI dual link connectors are used, the device is only compatible with single-link DVI-D video signals.

Rear panel



REAR PANEL

Figure 17

DVI-D signal input

Equalizes the DVI input, ensuring signal integrity.

AC power input and AC power output

AC 100-240V 50/60Hz

GND

Protective earth

Note

1. Protective earth must be connected with PE cable for safety.
2. When AC power output is used, the output current should not exceed its maximum value.

Connection sketch

Figure 18

Figure 19

In order to start the unit, the following steps should be carried out in the given sequence.

4.1 Connecting the power cord and its bracket

Caution

Use a power cord with PE conductor corresponding to the safety requirement of the respective country of use.

1. Remove the machine screw over PE sign, and then fix the PE cable on the housing of the unit with the machine screw.
2. Put the power cords on the power cord bracket.
3. Connect the power cords into AC power input receptacle and AC power output receptacle. Connect AC power output according to the needs of the system.
4. Install the power cord bracket to the unit with three M3*6 machine screws and tighten.
5. Connect the power supply socket.

4.2 Start-up mode and connecting DVI cable

4.2.1 Start-up with the DDC of the unit itself

1. Connect DVI-D input connector on the unit to DVI-D output connector on the video source device with the attached DVI-D signal cable.
2. Power on the unit.
3. Power on the video source device.
4. After start-up is over, connecting DVI output connectors on the unit to the desired display devices with DVI-D signal cables.
5. Power on the desired display devices.

Note

DDC communication is between the video source device and the unit itself.

4.2.2 Start-up with the DDC of the desired display device

1. Connect DVI-D input connector on the unit to DVI-D output connector on the video source device with the attached DVI-D signal cable.
2. Connect DVI output connectors on the unit to the desired display devices with DVI-D signal cables.

3. Power on the unit and the desired display devices.
4. Power on the video source device.

Note

DDC communication is between the video source device and the desired display device connected to the DVI output connector of the highest DDC priority.

5. Fault diagnostics

Fault	Cause	Remedy
operation LED off	Broken fuse	Inform servicing department.
	Power cord not inserted or incorrectly inserted	Insert power cord.
No picture appears on the display device, operation LED green	No video signal into the display device	Check DVI-D cable and its connection.
Abnormal picture appears on the display device, operation LED green	Abnormal video signal into the display device.	Check DVI-D cable and its connection.
operation LED orange	No video signal into the unit	Check video source and DVI-D cable connection.

6. Remarks and contact address

Invalidity of guarantee

All unauthorized electrical or mechanical alterations on or in the unit result in loss of the guarantee.

Information on the User's Manual

For clarity reasons, this User's Manual does not contain all detailed information on this product. Your attention is additionally drawn to the fact that the contents of this User's Manual are not part of a previous or existing agreement, commitment or statutory right and do not change the latter.

Guarantee

All commitments on the part of BIGTIDE are contained in the respective sales contract which also contains the complete and solely applicable warranty conditions. These warranty conditions in the contract are neither extended nor limited by the contents of User's Manual.

Repairs

Please contact your distributor from whom you originally purchased the product.

Environmental protection

When disposing of the device, the requirements and laws in the respective country must be observed.

Contact address

Name of Manufacture: Shenyang Torch-Bigtide Digital Technology Co., Ltd.

Address: No.18-8B, Yaoyang Road, Huishan Economic Development Area, Shenbei New District, Shenyang, China 110164

Person to be contacted: Mr. Chen Baohu

Tel: 86-24-88087621

FCC Statement

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.