



TIVA[®] SGP 42

ETHERNET I/O EXPANSION INTERFACE WITH GPIO, RELAYS & RS-232

LDSGP42;

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1 DOCUMENT VERSIONS AND REVISIONS

Version	Date	Implemented Changes
1	11/2025	Original version

2 INTRODUCTION

2.1 YOU MADE THE RIGHT CHOICE!

This product has been developed and manufactured to the highest quality standards to ensure many years of problem-free operation. Find further information about LD Systems on our website:

<https://www.ld-systems.com/>

2.2 CONTACTS

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2.3 LINK TO THE DOWNLOAD CENTRE



You can download some information, such as CAD data or technical data, from the Download Centre. Scan the QR code or click the link to download this information:

2.4 VISUALISATION CONVENTIONS IN THIS USER MANUAL

In this manual we use graphical symbols and icons in certain contexts. Find below a table with explanations and use cases of the graphical symbols and icons.

Icon / Symbol	Designation	Context	Explanation / Example
✓	Prerequisite	Tasks	Used in task topics to indicate a prerequisite that must be met before beginning the task.
⇒	Result / Intermediate Result	Tasks	Used in task topics to indicate a result or intermediate result of an action step.
1 Step a) Substep	1 Action Step a) Substep	Tasks	Used in task topics to indicate action steps and substeps.

Icon / Symbol	Designation	Context	Explanation / Example
1	Callout	Graphics; tasks	Text-image reference or labeling of certain functions on the device
[...]	Value range indicator	Technical data; paragraphs; lists	Indicates the range of a value, such as "Compressor ratio: 1:1...20:1 ". Mostly used in tables or callouts.
*	Asterisk	Paragraphs; tables	Indicates additional information in a footnote.
The LIM LED lights up	General User Interface element	Paragraphs; tasks; tables; lists	The words presented in this way represent graphic user interface elements on the device.
PAGE button	Key / Button	Paragraphs; tasks; tables; lists	The words presented in this way represent user interface controls on the device.
<name>	User input	Paragraphs; tasks; tables; lists	The words presented in this way represent required user inputs.
<u>https://adamhall.com</u>	Weblink	Paragraphs; tables; lists	External link to a website

3 PRODUCT COMPLIANCE

3.1 MANUFACTURER'S DECLARATION

Adam Hall offers a voluntary, EU-wide manufacturer's guarantee of 5 years. The statutory warranty period is not affected by this voluntary guarantee.

Visit the Adam Hall Service Portal to access the **Download Centre**:

<https://portal.adamhall.com/>

Under the **Service & Regulations** section, you find our current detailed manufacturer's declarations, warranty conditions, and limitation of liability.

To request warranty for a product, please contact:

Adam Hall GmbH, Adam-Hall-Str. 1, 61267 Neu-Anspach

customerservice@adamhall.com

0049 (0)6081 / 9419-1000

3.2 DECLARATION OF CONFORMITY

UK
CA

Hereby, Adam Hall Ltd. declares that this product meets the following guidelines (where applicable)

- Electrical Equipment (Safety) Regulations 2016
- Electromagnetic Compatibility Regulations 2016 (SI 2016/1091)
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulation 2012 (SI 2012/3032)
- Radio Equipment Regulations 2017 (SI 2016/2015)

Products that are subject to Electrical Equipment(Safety)Regulation 2016, EMC Regulation 2016 or RoHS Regulation can be requested at info@adamhall.com. Products that are subject to the Radio Equipments Regulations 2017 (SI2017/1206) can be downloaded at <http://www.adamhall.com/compliance>.

4 SAFETY INSTRUCTIONS

4.1 INTENDED USE

The **TIVA® SGP42** is intended for use in professional audio-visual and control system environments. It enables the routing, management, and control of audio and video signals, as well as the remote control of serial devices over IP networks. The device supports integration with AV equipment and control systems via Ethernet, RS-232, and GPIO interfaces.

This product has been developed for the professional use in the field of event technology. Furthermore it is intended for qualified users with specialist knowledge of event technology only.

The device is intended for fixed installation and not for mobile application.

The device is intended for indoor use only.

It is not suitable for domestic use.

Do not use the product outside the operating conditions as stated in the user manual under Technical Data. Liability for damage and third-party damage to persons and property due to inappropriate use is excluded.

This product is not suitable for children and persons with limited physical, sensory, or mental capabilities or lack of experience and knowledge.

4.2 EXPLANATION OF SAFETY AND WARNING SYMBOLS

Find the following safety and warning symbols on the device, the user manual, or the packaging:



This symbol indicates that you must read the complete user manual before using the product.



This symbol indicates a general hazardous situation.



This symbol indicates hazards that can cause electric shock.



This symbol indicates that the product is for indoor use only.



This symbol indicates that the product is not suitable for household use.



This symbol indicates that the product has no serviceable parts. Only authorized personnel is allowed to perform maintenance or service work.



This symbol indicates helpful hints or additional information.

4.3 STRUCTURE OF WARNING MESSAGES

In this user manual, warning messages are structured with a safety symbol, a signal word, a hazard description, and instructions on how to avoid injuries or death.



Indicates a hazardous situation which will result in death or serious injury.



Indicates a hazardous situation which could result in death or serious injury



Indicates a hazardous situation which could result in minor or moderate injury.



Indicates situations or conditions that could result in damage to property and/or the environment.

4.4

GENERAL SAFETY



- Read this document carefully.
- Keep this document for later reference.
- Follow closely the instructions in this document.
- This document is an integral part of the product. If you sell or pass on the product, you must include this document.
- Only use this product according to its intended use.
- Risk of choking. Keep small parts away from children and individuals with impaired physical, sensory, or mental capabilities.
- Risk of suffocation. Keep plastic bags away from children and individuals with impaired physical, sensory, or mental capabilities.
- Observe all safety instructions and warning messages in this document, on the device, and on the packaging.
- Products are subject to continuous further development. If you find discrepancies between this document and the product labeling, the information on the product always takes priority.
- Do not remove safety instructions or warning messages from the product.
- Do not open the device.
- Do not modify the product.
- If the product shows any sign of damage, do not use it.
- Do not operate the product with removed or missing covers.
- Do not expose the product to direct sunlight.
- If not further specified in the user manual under Technical Data, do not use the product in ambient temperatures that exceed 40 °C / 104 °F or fall below 0 °C / 32 °F

- Do not use the product in tropical climate.
- Do not use the product above 2000 metres of altitude.
- Unless otherwise stated, do not use the product under marine conditions.
- Use only accessories specified by the manufacturer.
- Maintenance and repairs may only be carried out by authorized service personnel.
- Store and transport the product in a dry and safe environment.
- Clean the product on a regular basis. If applicable, see the user manual for maintenance intervals.
- If the device was exposed to strong temperature changes, such as during transport, do not switch it on immediately. Wait until the device has reached ambient temperature.

4.5

ELECTRICAL SAFETY



- Only operate the device with the provided power supply. If no power supply is included, the device should be powered via Power over Ethernet (PoE) using equipment compliant with the IEEE 802.3af standards (PSE output up to 15.4 W).
- If you don't use PoE or the provided power supply, any external power supply used must meet the following specifications:
 - Comply with all applicable local safety regulations
 - Be certified for use in the country of installation
 - Meet SELV (Safety Extra Low Voltage) or PELV (Protective Extra Low Voltage) requirements
- This is an electrical device in protection class III, using safety extra-low voltage (SELV) or protective extra-low voltage (PELV).
- Do not bypass the mains fuse.
- Use only mains fuses as specified by the manufacturer.
- Do not use kinked or otherwise damaged power cables.
- Only operate the device on compliant, tested and intact mains power outlets.
- Do not use the device in the vicinity of water. Keep the device away from splashing or dripping water.
- Make sure that the voltage and frequency of the mains power match the values specified by the manufacturer.
- Take suitable measures against overvoltage, such as lightning strikes.
- For devices with a power out connector, make sure the total current consumption of all connected devices does not exceed the value specified by the manufacturer.
- This device is suitable for continuous current.
- Disconnect the device from all poles before maintenance, repair or extend periods of non-use.
- Permanently connected power cables may only be replaced by a qualified service technician.

4.6

THERMAL SAFETY

- Do not install the device near heat sources, such as radiators or ovens.
- Do not block any ventilation openings.
- Unless otherwise stated, keep a minimum clearance of at least 20 centimetres around the device.
- Unless otherwise stated, keep flammable materials, such as paper or wood, at least 50 centimetres away from the device

4.7

DEVICE SAFETY



- Do not switch the device on and off in quick succession, because this will shorten the device lifetime.

5 PRODUCT DESCRIPTION

5.1 PRODUCT OVERVIEW

This device enables flexible signal routing, control, and monitoring for professional AV and network system installations.

INTEGRATION-FRIENDLY FEATURES:

- Dual power supply modes: DC or Power over Ethernet (PoE)
- 1× 100M adaptive Ethernet port (switchable protocol: TCP/UDP, default TCP)
- RS-232 mode supported
- Full serial port configuration: Data bits, parity, stop bits
- Control via:
 - RS-232 (configurable, 2400–115200 baud)
 - GPIO (input by default, configurable to output)
 - ASCII command API
 - Built-in web server (accessible via browser on PC, tablet, or mobile)

5.2 TECHNICAL DATA

Technical

RS-232	Support full duplex communication mode
Baud rate	Support 2400, 4800, 9600, 14400, 19200, 38400, 56000, 57600 and 115200
LAN	10/100M Ethernet interface
GPIO	The detection accuracy can reach 1ms
ESD protection	IEC 61000-4-2: ±8 kV (Air-gap discharge) & ±4 kV (Contact discharge)

Connection

INPUTS	LAN/PoE [RJ45, 8-pin female, supporting PoE] x DC IN [2pin-3.81 mm terminal block connector]
OUTPUTS	I/O [3pin-3.81 mm terminal block connector] x RS-232 [5pin-3.81 mm terminal block connector]

Mechanical

Housing	Metal enclosure
Colour	Black
Dimension	95 mm [W] × 68 mm [D] × 17 mm [H]

Mechanical

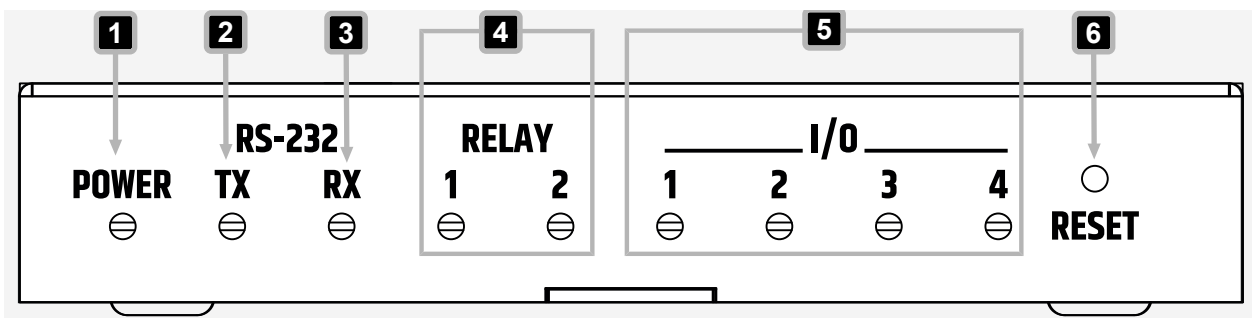
Weight	181 g
Power consumption	0.48 W
Operating temperature	0 °C ... 40 °C / 32 °F ... 104 °F
Storage temperature	-20 °C ... 60 °C / -4 °F ... 140 °F
Relative humidity	20 % ... 90 % RH (non-condensing)

5.3

USER INTERFACE

5.3.1

FRONT PANEL OVERVIEW



1

POWER

- **LED is on** - Indicates that the device is powered on.
- **LED is flashing** - Indicates that the device has entered software update mode. Normal operation can only be restored by performing a software upgrade via the RS-232 port.

2

RS-232 TX

- **LED is flashing** - Indicates that the serial port is transmitting data
- **LED is off** - Indicates that the serial port is not transmitting data

3

RS-232 RX

- **LED is flashing** - Indicates that the serial port is receiving data
- **LED is off** - Indicates that the serial port is not receiving data

4

RELAY 1 & 2 LEDs - Light up when the relay is switched on (contact closed)

5

I/O 1... 4

- **LEDs are on** - Indicate a high signal level in input or output mode
- **LEDs are off** - Indicate a low signal level in input or output mode

6

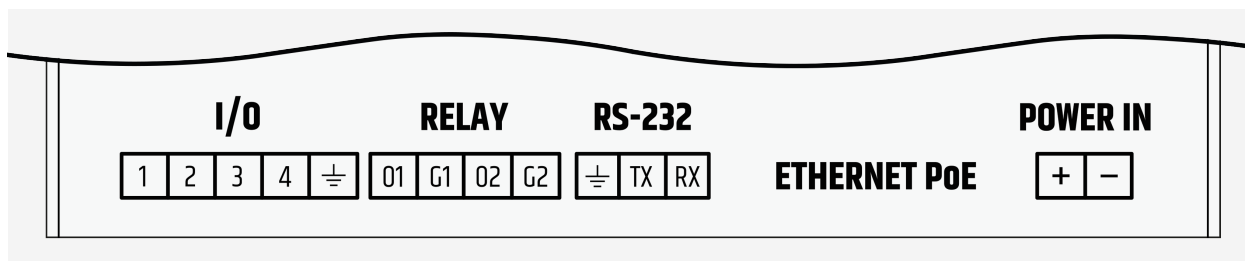
RESET Button - Push and hold to reset the device to factory settings

5.3.2 REAR PANEL OVERVIEW

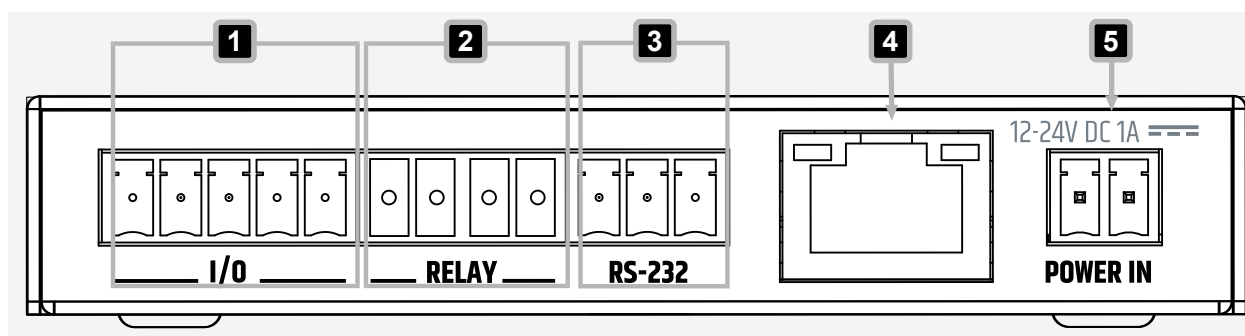


Some rear panel labels are located on the top of the device housing.

TOP VIEW



REAR VIEW



1

I/O GPIO

- **In Input Mode** - Provides 5VDC/150mA in GPI mode (default setting: input mode). To activate the input, connect a dry contact switch between the input pin and ground. Do not connect external DC power sources.
- **In Output Mode** - Transmits control signals to external device. When configured as output, GPIO will default to a low-level state upon power-on.

2

RELAY - Connects to external devices for switching low-voltage DC circuits such as door strikes, signal lamps, or control inputs. Relays support up to 30VDC / 1A and default to an open (disconnected) state (Normally Open = NO). After each reboot, relays return to their default open state. .

! NOTICE! Do not switch or connect AC power sources. Only low-voltage DC loads should be connected.

3

RS-232 - Connects to external serial devices for configuration, control, or data exchange. Default RS-232 settings: 115200 baud, 8 data bits, 1 stop bit, no parity. Parameters are retained after power-off.

4

ETHERNET PoE - Connects to a PC or network for access to the integrated web interface or to external systems for ASCII code transmission using an ASCII command tool



POWER IN - Connects to an DC external power adapter (1 A, 12 V ... 24 V)

6 PREPARATION

6.1 SCOPE OF DELIVERY

Item Description	Quantity
Device	1
5pin-3.81 mm Terminal block connector (male)	1
3pin-3.81 mm Terminal block connector (male)	1
2pin-3.81 mm Terminal block connector (male)	1
Mounting ear	2
Metric screw (M3 x 4)	4
Safety Compliance Information (en, de, fr, it, pl, es)	1

7 OPERATION

7.1 POWER SUPPLY

7.1.1 ABOUT POWER OVER ETHERNET (POE)

Power over Ethernet (PoE) delivers both power and data through a single Ethernet cable. The Ethernet cable, typically Cat5e or Cat6, runs from a PoE switch or injector to the PoE-enabled device.



We recommend using Power over Ethernet (PoE) as the primary power source, as it simplifies installation and reduces the need for additional power infrastructure.

7.1.2 TURNING THE DEVICE ON OR OFF



The device automatically turns on when connected to a power source — either via Power over Ethernet (PoE) or an external power adapter.

- 1 Plug in the power source to turn the device on.
- 2 Remove the power source to turn the device off.

7.1.3 CONNECTING A POWER ADAPTER



A power adapter is not included in the scope of delivery.



WARNING

Mains voltage

Risk of electric shock

- a. Do not use kinked or damaged mains power cables.



NOTICE

Damage to the device

- a. Make sure that the voltage of the mains power socket matches the device operating voltage.
- b. Do not plug the device under load.

- ✓ Power adapter which meets the specifications indicated on the device label and feature a 2-pin terminal block connector for device-side connection

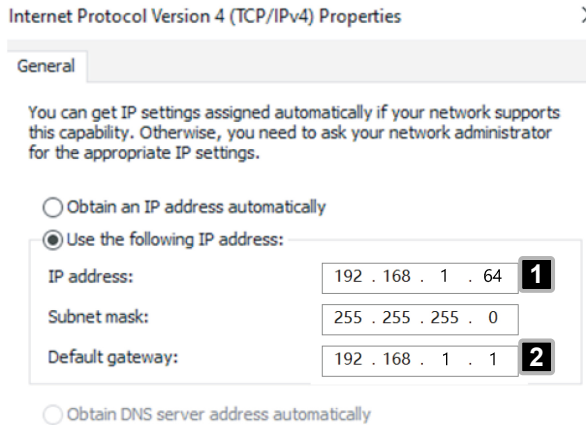
- 1 Plug the terminal block connector of the power adapter into the **POWER IN** terminal on the device.
- 2 Plug the AC input of the power adapter into a mains power socket.

7.2 WEB-BASED CONTROL

7.2.1 ABOUT WEB-BASED CONTROL

You can control the device via a web-based graphical user interface (GUI). Log in through a standard browser - preferably Google Chrome - on a computer, tablet, or smartphone to configure system parameters efficiently and securely.

7.2.2 ACCESSING THE WEB-INTERFACE



✓ UTP RJ45 Ethernet cable

- 1 Connect the **ETHERNET PoE** port of the **TIVA® SGP 42** to your PC using an RJ45 Ethernet cable.
- 2 Open the network adapter settings on your PC.
- 3 Configure your PC's IP address **1** to be in the same subnet as the **TIVA® SGP 42** **2**.

The default settings of the device are:

IP address:	192.168.1.42
Subnet mask:	255.255.255.0
Gateway:	192.168.1.1

- 4 Open a web browser on the connected PC.

i We recommend using Google Chrome for the best compatibility.

- 5 Enter <sgp42.local/> into the address bar **3**.
- 6 Press the **return button** on your keyboard to access the web-based graphical user interface.

7.2.3 UPDATING THE SOFTWARE VIA THE RS-232 PORT

- ✓ The device is connected via the 2-pin terminal block connector to a power adapter that complies with the specified requirements.
 - ✓ The device is powered on.
 - ✓ Adapter cable with 3-pin male terminal block connector to DB9 male RS-232.
- 1 Disconnect the **ETHERNET PoE** cable.
 - 2 Push and hold the **RESET** button to enter the update mode.
 - ⇒ The **POWER** LED starts flashing.

- 3 Connect the **RS-232** port of the **TIVA® SGP42** to your PC.
- 4 Reinstall the current firmware version to exit the update mode.



If you need the software update tool, please contact our customer service department.

7.2.4 WEB-BASED OVERVIEWS

7.2.4.1 STATUS SECTION OVERVIEW

LDsystems LD

STATUS

CONTROL

SYSTEM

Serial Device

Welcome!

Firmware Version: Ver 1.01.05

Device Basic Information

I/O 1 Mode:	OUTPUT
I/O 2 Mode:	INPUT
I/O 3 Mode:	INPUT
I/O 4 Mode:	INPUT
Serial Baud:	115200

Device Network Information

IP Mode:	DHCP ON
TCP/UDP Mode:	UDP
IP Address:	192.168.000.108
Subnet Mask:	255.255.255.000
Gateway:	192.168.000.008
MAC Address:	6C-DF-FB-00-25-89
System Udp Local Port:	9000
System Udp Remote Port:	9000
Com Udp Local Port:	9001
Com Udp Remote Port:	9001

1

1 **Firmware Version: & Device Basic Information & Device Network Information -**
Displays the current system state (read-only)

7.2.4.2 CONTROL SECTION OVERVIEW

Serial Device

Uart Setting

BaudRate: **1**

DataLen:

StopBit: **2**

ParityBit: **3**

UartType: **4**

I/O Setting

I/O 1 Mode: **5**

Output Level: ☐ Low ☐ Hi

I/O 2 Mode:

Output Level: ☐ Low ☐ Hi

I/O 3 Mode:

Output Level: ☐ Low ☐ Hi

I/O 4 Mode:

Output Level: ☐ Low ☐ Hi

Relay Setting

Relay 1: ☐ C ☐ O

Relay 2: ☐ C ☐ O

6

- 1** **BaudRate Drop-Down Menu** - Selects the baud rate (**115200, 57600, 56000, 38400, 19200, 14400, 9600, 4800, 2400**)
- 2** **StopBit: Drop-Down Menu** - Selects the stop bit (**1 bit** or **2 bits**). Data length is fixed at 8 bits and cannot be modified.
- 3** **ParityBit: Drop-Down Menu** - Selects the parity bit (**None, Even, Odd**)
- 4** **Confirm Button** - Saves the changes made and applies the new settings
- 5** **I/O 1 ... 4 Mode Drop-Down Menus** - Select the I/O mode (**Input, Output**)
Output Level 1 ... 4 - Toggle the output level (**Low/Hi**). This function is only active when the port is configured in output mode.
Confirm 1 ... 4 Buttons - Save the changes made and apply the new settings
- 6** **Relay Setting 1 ... 2** - Toggle the relay output between open and closed states (**o/c**).

7.2.4.3 SYSTEM SECTION OVERVIEW

- 1 DHCP:** ☐ On ☒ Off - Toggles on or off the automatic assignment of network settings via DHCP
DHCP Off: Allows editing the IP address, gateway and subnet mask
DHCP On: The device automatically receives its IP address, subnet mask, gateway, and other network settings from a DHCP server. Manual configuration is disabled in this mode
- 2 IP Address & Gateway & Subnet Mask Input Fields -**
DHCP Off: Display the current network settings
DHCP On: Allow to enter a custom IP address, subnet mask, and gateway.
- 3 TCP/UDP Mode Drop-Down Menu -** Selects the transport protocol used for remote control via ASCII commands from third-party devices. By default, TCP is used. When UDP mode is selected, two separate ports can be configured: the **System Udp Remote Port** for receiving remote configuration commands (port range: 1–65535), and the **Com Udp Remote Port** for RS-232 data transmission.
TCP Mode: Establishes a connection-based protocol. Manual configuration is disabled in this mode
UDP Mode: Enables editing of two UDP ports:
 - **System Udp Remote Port:** Receives configuration commands from third-party devices to remotely adjust the settings of the **TIVA® SGP42**. You can assign any port number between 1 and 65535.
 - **Com Udp Remote Port:** Enables transparent data transmission over the RS-232 serial port. Commands sent from a third-party networked device to this UDP port are forwarded directly to the RS-232 output of the **TIVA® SGP42**, allowing control of a connected serial device. You can assign any port number between 1 and 65535.

4 System Udp Remote Port: Input Field -

TCP Mode: Manual configuration is disabled in this mode. TCP is used for communication with a default port number of 8000.

UDP Mode: Allows manual entry of a port number. You can assign any port number between 1 and 65535. The default port number is 9000.

5 Com Udp Remote Port: Input Field -

TCP Mode: Manual configuration is disabled in this mode. TCP is used for serial communication with a default port number of 8001.

UDP Mode: Allows manual entry of a port number. You can assign any port number between 1 and 65535. The default port number is 9001.

6 Confirm Button - Saves the changes made and applies the new settings**7 Factory Reset:** - Initiates a reboot and restores the device to its factory default configuration**7.3****QUESTRA®****7.3.1****DOWNLOADING QUESTRA® AND QUESTRA® PANELS APP**

Visit the **LD Systems** website to download the **QUESTRA®** software. You will also find links to the Google Play Store and Apple App Store to download the **QUESTRA®** Panels app.

www.ld-systems.com/questra

QUESTRA® DOWNLOADS

Durch das Herunterladen der QUESTRA® Software oder der QUESTRA® Panels App akzeptiere ich die **EULA** und bestätige, dass ich die Software oder die App nur gemäß den in der **EULA** beschriebenen Bedingungen nutzen werde.

7.4 STATUS MULTICAST SERVICE

7.4.1 ABOUT STATUS MULTICAST SERVICE

Upon power-up, the SGP42 Serial Device automatically activates a multicast service to broadcast its port status information. The service requires no external triggering and is designed for real-time monitoring and seamless integration into networked systems.

- Each message contains a JSON payload reflecting the current status of relays and I/O ports.
- The multicast service operates continuously at 2-second intervals.
- This mechanism enables passive status acquisition for control and diagnostic systems.

7.4.2 STATUS MULTICAST SERVICE EXAMPLE OUTPUT (JSON PAYLOAD)

```
{
  "ip mode": "dhcp on",
  "tcp/udp mode": "tcp",
  "ip": "192.168.79.103",
  "netmask": "255.255.255.0",
  "gateway": "192.168.79.1",
  "mac": "6c:df:fb:00:c5:84",
  "system tcp server port": 8000,
  "serial tcp server port": 8001,
  "usart type": "rs232",
  "baud rate": 115200,
  "data len": "8bit",
  "stop bit": "1bit",
  "parity bit": "none",
  "relay 1": "close",
  "relay 2": "close",
  "i/o 1 mode": "input",
  "i/o 1 level": "low",
  "i/o 2 mode": "input",
  "i/o 2 level": "low",
  "i/o 3 mode": "input",
  "i/o 3 level": "low",
  "i/o 4 mode": "input",
  "i/o 4 level": "low",
  "ver": "v1.0x.0x",
```

```
"model": "SGP42",
"hostname": "Serial Device"
}
```

7.5 ASCII COMMAND API

7.5.1 ABOUT EXTENDED ASCII CODES

ASCII (American Standard Code for Information Interchange) is a character encoding standard used to represent text in digital systems. With 8 data bits, the system can represent up to 256 characters, known as Extended ASCII. This extended set is commonly used in serial communication.

7.5.2 USING ASCII-COMMANDS TO OPERATE THE TIVA® DEVICE VIA RS-232 INTERFACE



Electrical Signal Conflict

Risk of Hardware Damage or Communication Failure.

- Use only properly wired RS-232 cables with correct pin assignments according to the device's DTE/DCE configuration.
- Establish direct point-to-point serial connections between compatible RS-232 devices
- Do not connect RS-232 ports to TTL-level serial interfaces

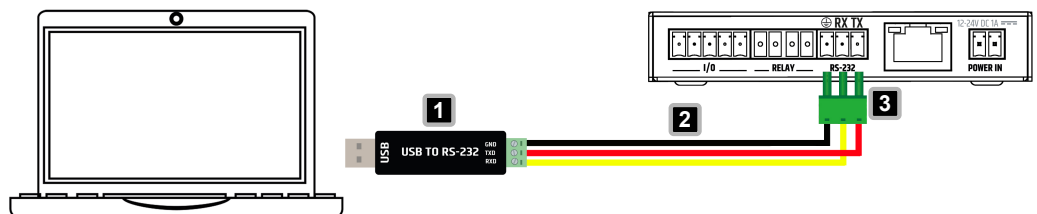
✓ Serial command tool

✓ Adapter cable with 3-pin male terminal block connector to DB9 male RS-232

- 1 Connect the **RS-232** port of the **TIVA® SGP 42** to your PC.
- 2 Open a serial command tool on your PC.
- 3 Send ASCII commands to the **TIVA® SGP 42** to control its functions.

If your PC doesn't have an RS-232 port, the following components are required and must be connected:

- **1** USB to RS-232 serial adapter with terminal block connector, featuring three pins labeled as TXD, RXD, and GND
- **2** 3-wire serial cable
- **3** 3-pin terminal block connector (included in the delivery)



7.5.3 USING ASCII-COMMANDS TO OPERATE THE TIVA® DEVICE VIA RJ45 INTERFACE

- ✓ TCP client software (Transmission Control Protocol – a standard for reliable network communication)
 - ✓ PC connected to the same network as the device.
 - ✓ RJ45 UTP Ethernet cable
- 1 Connect the **TIVA® SGP 42** to your network using the RJ45 Ethernet port.
 - 2 Open the TCP client tool and connect to the device's IP address on port 8000.
 - 3 Send ASCII commands through the TCP session to control the functions of the **TIVA® SGP42**.

7.5.4 SERIAL COMMUNICATION PARAMETERS

Serial Interface (RS-232)

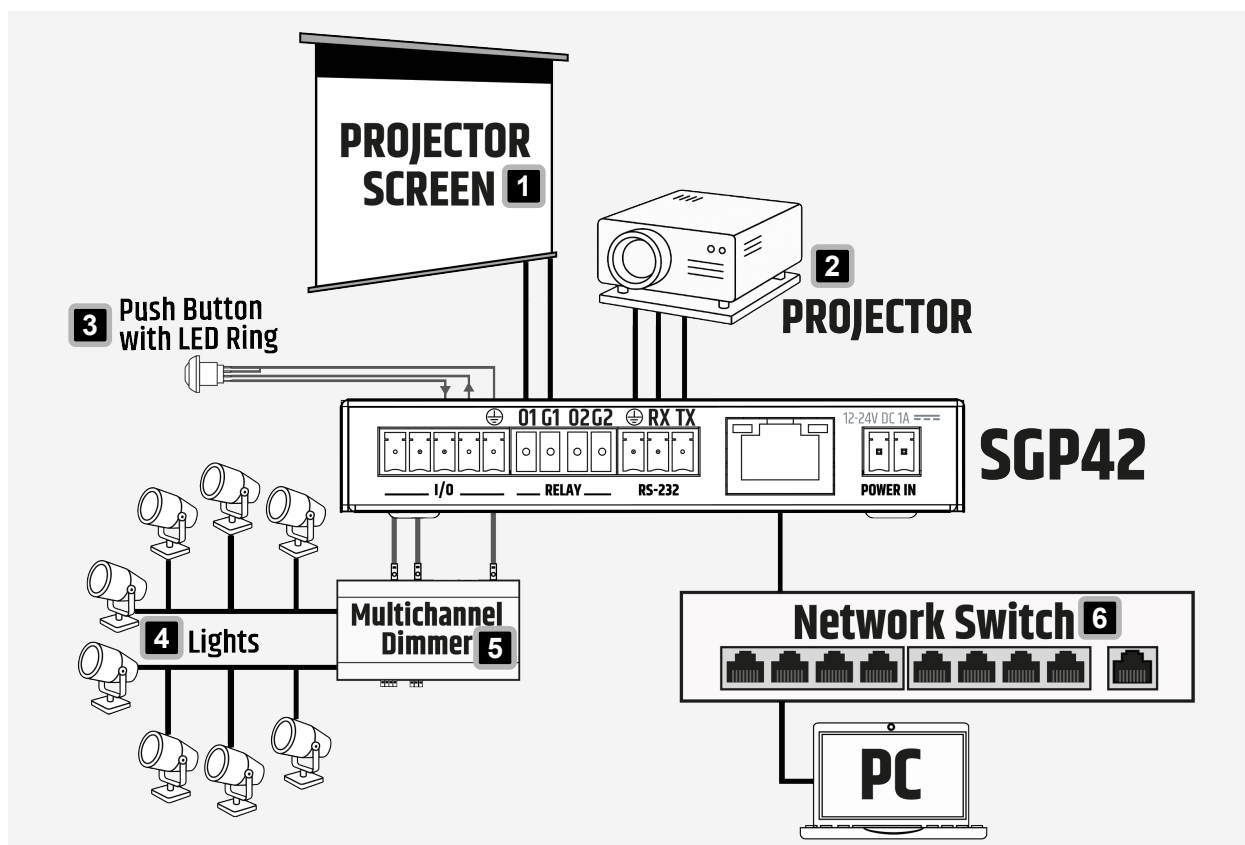
Baud rate	115200 (default speed for data transmission)
Data bit	8
Stop bit	1
Parity bit	none
Flow control	none

Ethernet Interface

TCP ports	• System TCP port: 8000 • Communication (Com) TCP port: 8001
UDP ports	• System UDP local port: 9000, remote port: 1000 • Com UDP local port: 9001, remote port: 1001
Network settings	• IP address: 192.168.1.42 • Subnet mask: 255.255.255.0 • Gateway: 192.168.1.1 • DHCP: Off (static IP configuration)
Ethernet mode	TCP/UDP, default is TCP

7.6

USE CASE



- 1** Projector Screen
- 2** Projector
- 3** LED Ring Button
- 4** Lights
- 5** Multichannel Dimmer
- 6** Network Switch

8 EXTENDED ASCII-CODES

8.1 COMMAND STRUCTURE AND ERROR CODES

COMMAND STRUCTURE

Placeholder for parameters X, Y, Z

ERROR CODES

Unknown command E00
Parameter out of range E01
This feature is not supported E03

8.2 EXTENDED ASCII-CODE OVERVIEW

RS-232 FUNCTION SETTING

Command Code	Function Description	Example	Feedback	Factory Default
fa ae ea 08 B0 00 00 00 00 00 00 00 00 00 4A	Set RS232 not to support API (hex command). The restart status is not saved, the API is not supported by default.	fa ae ea 08 B0 00 00 00 00 00 00 00 00 00 4A	fa ae ea 08 B0 00 00 00 00 00 00 00 00 00 00 4A	
fa ae ea 08 B1 00 00 00 00 00 00 00 00 4B	Set RS232 support API (hex command). The restart status is not saved, the API is not supported by default.	fa ae ea 08 B1 00 00 00 00 00 00 00 00 00 4B	fa ae ea 08 B1 00 00 00 00 00 00 00 00 00 4B	

SYSTEM SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
help!	Get the API information supported by the system	help!	help! expander device search cs re-boot! cs reset! cs	

Command Code	Function Description	Example	Feedback	Factory Default
			device hostname xxx! cr device host- name!	
expander device search\r\n	udp Broadcast queries device informa- tion. Note: udp Broadcast ad- dress:255.255.255.255, udp Broadcast port:30600	expander device search\r\n	{ "ip mode": "dhcp on/off", "tcp/udp mode": "tcp/udp", "ip": "192.168.0.101", "netmask": "255.255.255.0", "gateway": "192.168.0.1", "mac": "xx:xx:xx:xx:xx:xx",}	
cs reboot!	reboot the device.	cs reboot!	reboot...	
cs reset!	Reset to factory defaults.	cs reset!	reset to factory de- faults	
cs device hostname [xxx]!	Change the device hostname name. xxx:A maximum of 16 characters are sup- ported.	cs device hostname serialdevice!	device host- name:serialdevice!	device host- name:ser i- aldevice!
cr device hostname!	Query the hostname name of the device.	cr device hostname!	device host- name:serialdevice!	device host- name:ser i- aldevice!
cr fw ver- sion!	Get firmware version.	cr fw version!	boot version:v1.xx.xx app version:v1.xx.xx	
cr status!	get the product all status: version,i/ o,com and network.	cr status!	boot version:v1.xx.xx app version:v1.xx.xx baud rate:115200 data len:8bit parity bit:none stop bit:1bit output type:rs232	

SERIAL PORT SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
cs com baudrate [x]!	Serial port baud rate settings x = {1-9} 1->115200 2->57600 3->56000 4->38400 5->19200 6->14400 7->9600 8->4800 9->2400	cs com baudrate 1!	com baudrate: 115200	com baudrate : 115200
cs com datalen [x]!	Serial port data length settings x = 1 1->8bit	cs com datalen 1!	com datalen:8 bit	com datalen: 8 bit
cs com stopbit [x]!	Serial port stop bit settings x = {1-2} 1->1bit 2->2bit	cs com stopbit 1!	com stopbit: 1 bit	com stopbit: 1 bit
cs com paritybit [x]!	Serial port data verification settings x = {1-3} 1->none 2->even 3->odd	cs com paritybit 1!	com paritybit: none	com paritybit: none
cs com output type [x]!	Serial output type settings x = {1-2} 1->rs232	cs com output type 1!	com output: rs232	com output: rs232
cr com config!	Read the serial port configuration information.	cr com config!	baud rate:115200 data len:8bit parity bit:none stop bit:1bit output type:rs232	

NETWORK PORT SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
cs ip addr xxx.xxx.xxx.x xx!	Set network ip address. ip range: 1.0.0.1~223.255.255.254 <i>Note: DHCP does not support modifying IP information and the device will re-boot.</i>	cs ip addr 192.168.0.100! 192.168.0.100!	ip address: 192.168.0.100	192.168.0.101
cs subnet xxx.xxx.xxx.x xx!	Set network subnet mask. xxx=255 254 252 248 240 224 192 128 0 <i>Note: DHCP does not support modifying subnet information and the device will reboot.</i>	cs subnet 255.255.254.0! 255.255.254.0!	subnet mask: 255.255.254.0	255.255.255.0
cs gateway xxx.xxx.xxx.x xx!	Set network gateway. Gateway range: 1.0.0.1~223.255.255.254 <i>Note: DHCP does not support modifying gateway information and the device will reboot.</i>	cs gateway 192.168.0.254! 192.168.0.254!	gateway: 192.168.0.254	192.168.0.1
cs ip mode [x]!	Set ip mode x={0-1} 0=DHCP off 1=DHCP on <i>Note: The device will reboot.</i>	cs ip mode 0! 1!	ip mode:dhcp off	dhcp off
cs tcp/udp mode [x]!	Set serial data transparent way x={1-2} 1=tcp 2=udp <i>Note: The device will reboot.</i>	cs tcp/udp mode 1! 2!	tcp/udp mode:tcp	tcp
cs remote sys udp port [x]!	Set the remote system UDP port in the system configuration. x={1~65535} <i>Note: The device will reboot.</i>	cs remote sys udp port 1000! 1000!	system udp remote port:1000	1000
cs remote com udp port [x]!	Set the remote udp port for transparent data transmission over the serial port. x={1~65535} <i>Note: The device will reboot.</i>	cs remote com udp port 1001! 1001!	com udp remote port:1001	1001

Command Code	Function Description	Example	Feedback	Factory Default
cr ipconfig!	Network configuration query	cr ipconfig!	network config info: ip mode:dhcp off tcp/udp mode:tcp system tcp server port:8000 serial tcp server port:8001 system local udp port:9000 serial local udp port: 9001 system remote udp port:1000 serial remote udp port:1001 ip:192.168.0.101 sub- net mask: 255.255.255.0 gateway:192.168.1.1 mac address:xx:xx: xx:xx:xx:xx	

IO SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
cs i/o [x] mode [y]!	Set the I/O port mode. x={1~4} y={1-2} 1->i/o 1, 1->input, 2->i/o 2, 2->output. 3->i/o 3, 4->i/o 4,	cs i/o 1 mode 1!	i/o 1 mode:input gpio 1 input 0/1	i/o 1 mode: in- put gpio input 0/1

Command Code	Function Description	Example	Feedback	Factory Default
cr i/o [x] mode!	Read the I/O port mode. x={0-4} 0-> all i/o 1->i/o 1, 2->i/o 2, 3->i/o 3, 4->i/o 4.	cr i/o 1 mode!	i/o 1 mode:input/ output	
cs i/o [x] output level [y]!	Set the I/O output level. x = {1-4} y={0-1} 1->i/o 1, 0->low level, 2->i/o 2, 1->high level. 3->i/o 3, 4->i/o 4, Note:This parameter is valid when I/O is in output mode.	cs i/o 1 output level 1!	i/o 1 output level:high	i/o 1 output level:low
cr i/o [x] output level!	Read the IO output level. x = {1-4} 1->i/o 1, 2->i/o 2, 3->i/o 3, 4->i/o 4, Note: This parameter is valid when I/O is in output mode.	cr i/o 1 output level!	i/o output level:low/high	
	If I/O is in input mode and a low level is detected, report "gpio input 0".		gpio input 0	
	If I/O is in input mode and a high level is detected, report "gpio input 1".		gpio input 1	

RELAY SETTINGS

Command Code	Function Description	Example	Feedback	Factory Default
cs relay [x] to [y]!	relay switch x={1-2} y={0-1} 1->relay port 1 0->off 2->relay port 2 1->on	cs relay 1 to 1!	cs relay 1 to 1!	relay 1:off
cr relay [x]!	relay inquiry 0->all relay 1->relay 1 status 2->relay 2 status	cr relay 1!	relay 1:on/off	

9 MAINTENANCE

9.1

PRODUCT MAINTENANCE



CAUTION

Mains Voltage

Risk of electric shock

- a. Before you perform maintenance work on the device, disconnect the device from all poles.



NOTICE

Damage to the device and void of warranty

- a. Do not use cleaning agents, disinfectants, alcohol, or agents with abrasive effect for cleaning.

Carry out the maintenance measures listed below on a regular basis. The frequency of cleaning depends on the environment in which you use the product. Damp or dirty environments may cause increased soiling and wear.

VISUAL INSPECTION

Check the following points before operating the device.

-  **WARNING! Risk of electric shock.** Check mains power cables for damage or material fatigue.
- Check all air inlets and outlets for damage, dust, or dirt deposits.
- Check all outside screws and covers for corrosion, damage or excessive wear.
- Check all connectors and rubber sealing caps for damage, dust, or dirt deposits.
-  **WARNING! Risk of falling objects.** Check that all screws, fasteners, and rigging points are securely tightened.

CLEANING

- Clean the surface with a clean and damp lint-free cotton cloth. Wipe off all excess moisture.
-  **NOTICE! Do not use compressed air.** Clean any air inlets and outlets of dust and dirt deposits with a clean and damp lint-free cotton cloth.
- Clean all plug contacts from dust and dirt with a dry lint-free cotton cloth.

10 DISPOSAL

10.1

PACKAGING DISPOSAL



1. You can feed the packaging into the reusable material cycle using the usual disposal methods.
2. Separate the packaging in accordance with the applicable disposal laws and recycling regulations in your country

10.2

DEVICE DISPOSAL



1. This device is subject to the European Directive on Waste Electrical and Electronic Equipment, as amended. WEEE Directive Waste Electrical and Electronic Equipment. Old appliances do not belong in the household waste. The old device must be disposed of via an approved disposal company or a municipal disposal facility. Observe the applicable regulations in your country.
2. Observe all disposal laws applicable in your country.
3. As a private customer, you can obtain information on environmentally friendly disposal options from the seller of the product or the appropriate regional authorities.

