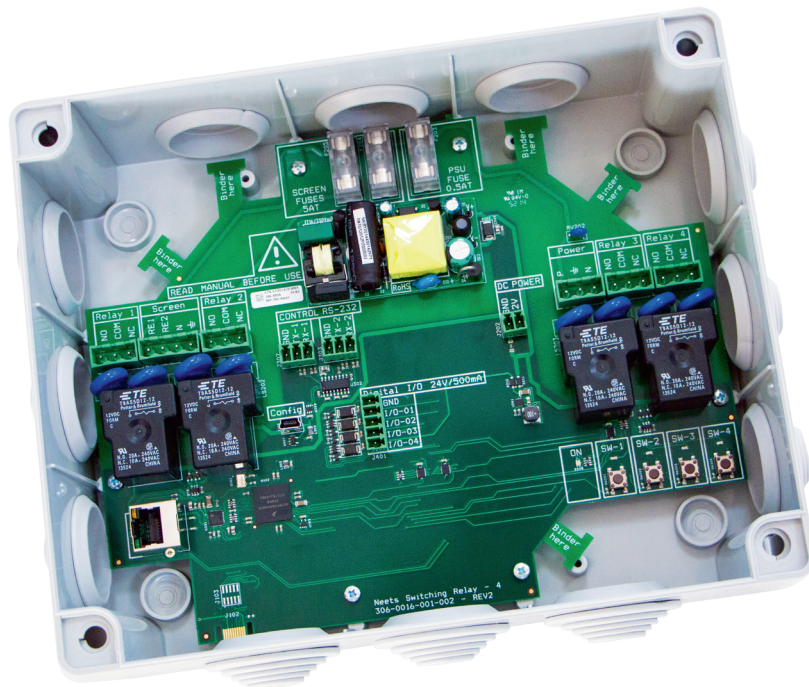


Neets Switching Relay - 4

Installation Manual



Foreword

The purpose of this document is to describe how to install and operate the Neets Switching Relay - 4.

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CHANGES - Neets reserve the right to change the specification and functions of this product without any notice.

Questions, AFTER reading this manual, can be addressed to your local distributor or:

Neets A/S
Langballe 4
8700 Horsens
Denmark

by E-Mail: Support@Neets.dk
or you may use our contact form at www.neets.dk

Revision list

This document (no: 230-028-306-0016) has the following revision changes:

Author: Date	Description	Pages	Rev
MH: 20-02-2015	First release	All	1.00
MH: 11-03-2015	Important Safe Instructions added to the manual	3	2.00
MH: 11-03-2015	Firmware upgrade text changed	1	3.00
MH: 18-02-2016	Dimensions and weight has been corrected	1	4.00

What is in the box?

When you open the box it will contain the following items:

1 x Neets Switching Relay - 4
Screws
Phoenix connectors
Manual

Important Safety Instructions

Caution:

Read these instructions:

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

Keep these Instructions:

The safety instructions should be kept for future reference.

Heed all Warnings:

Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments:

Do not use tools or attachments that are not recommended, because they may be hazardous

Warning!:

- This equipment should be operated only from the included power supply.
- To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).
- Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.
- Do not defeat the safety purpose of a polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards. Contact your local Neets reseller or distributor.
- If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.
- Do not use this equipment near water.
- To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture and objects filled with liquids.
- Unplug the product before cleaning. Clean only with a dry cloth and not cleaning fluid or aerosols. Such products could enter the unit and cause damage, fire, or electric shock. Some substances may also mar the finish of the product.

FCC Class A Notice:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

FCC regulations state that any unauthorized changes or modifications to this equipment, not expressly approved by the manufacturer, could void the user's authority to operate this equipment.



The lightning bolt triangle is used to alert the user to the presence of uninsulated "dangerous voltages" within the unit's chassis that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The exclamation point triangle is used to alert the user to presence of important operating and service instructions in the literature accompanying the product.

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Description

Neets Switching Relay – 4 (Relay – 4) provides total control in complex applications such as larger meeting/ conference rooms, lecture halls, and auditoriums. Automatic, configurable control is provided for all devices requiring AC power on/ off: projector lifts, screens, curtains and architectural lighting. Multiple relay activations can be immediate and simultaneous, or programmed for activation in a timed sequence.

Relay - 4 interacts with AV control systems to facilitate seamless integrated control of projectors, audio and video sources, and audio mixing along with relay switching functions. Relay - 4 incorporates a full range of options for real-time system control, including RS-232, IR or LAN. All functions are easily configurable through LAN using Neets configuration software or 3rd party systems, making the Relay - 4 a valuable tool for demanding applications.

What can it do?

- Easy control by RS-232 or LAN.
- Daisy-chain multiple Relay – 4. (control multiple units by one RS-232 port)
- Ready to use as a standard relay box. (control the relay by the I/O ports)
- RS-232 Loop-through: control of any unit on RS-232 port 2. (Can have different communication parameters than RS-232 port 1)
- IR control enabled when controlling the unit by LAN.
- LAN to RS-232 gateway.
- Compatible with 3rd party control systems.
- Software screen mode for easy and safe control of electrical screen.



Note that the Neets Switching Relay – 4 from factory is configured to control a 230 VAC screen or lift. Using the “Screen” connector and therefore you must not use the “Relay 1” and “Relay 2” connectors.

If you do not want to use the “Screen” connector, please remove fuse F1 and F3. Read the section “Controlling an electrical screen or lift” on page 13 for further details.



Specifications

Power Input

Voltage	100 VAC – 240 VAC
Line Frequency	47 Hz – 63 Hz
Power usage	10 W
Connector type	Terminal

Relay Output

Voltage max	240 VAC
Current max	8 A
Load max AC1	1150 W @ 230 VAC
Load max AC15	500 W @ 230 VAC
Single phase motor	370 W @ 230 VAC 1/4 HP @ 125 VAC
Connector	3 pin screw block

Input / Output

Input trigger low	< 1 VDC
Input trigger high	> 4 VDC
Output type	Open drain
Isolated output	No
Max voltage load	24 VDC
Max current	0.5 A
Connector	5 pin screw block

IR

Transmit frequency	400 Hz to 500 KHz
--------------------	-------------------

Approvals

IEC/EN 61000-6-1
IEC/EN 61000-6-2

Network (LAN)

Speed	10 / 100 Mbit
Duplex modes	Half or Full
DHCP	Default off
Default IP	192.168.254.252
Default gateway	192.168.1.1
Default subnet mask	255.255.255.0

RS-232

Baud rate	1200 – 115200 bit/sec
Data bits	7, 8
Parity	Even, Odd, None
Stop bits	1, 2

Dimensions

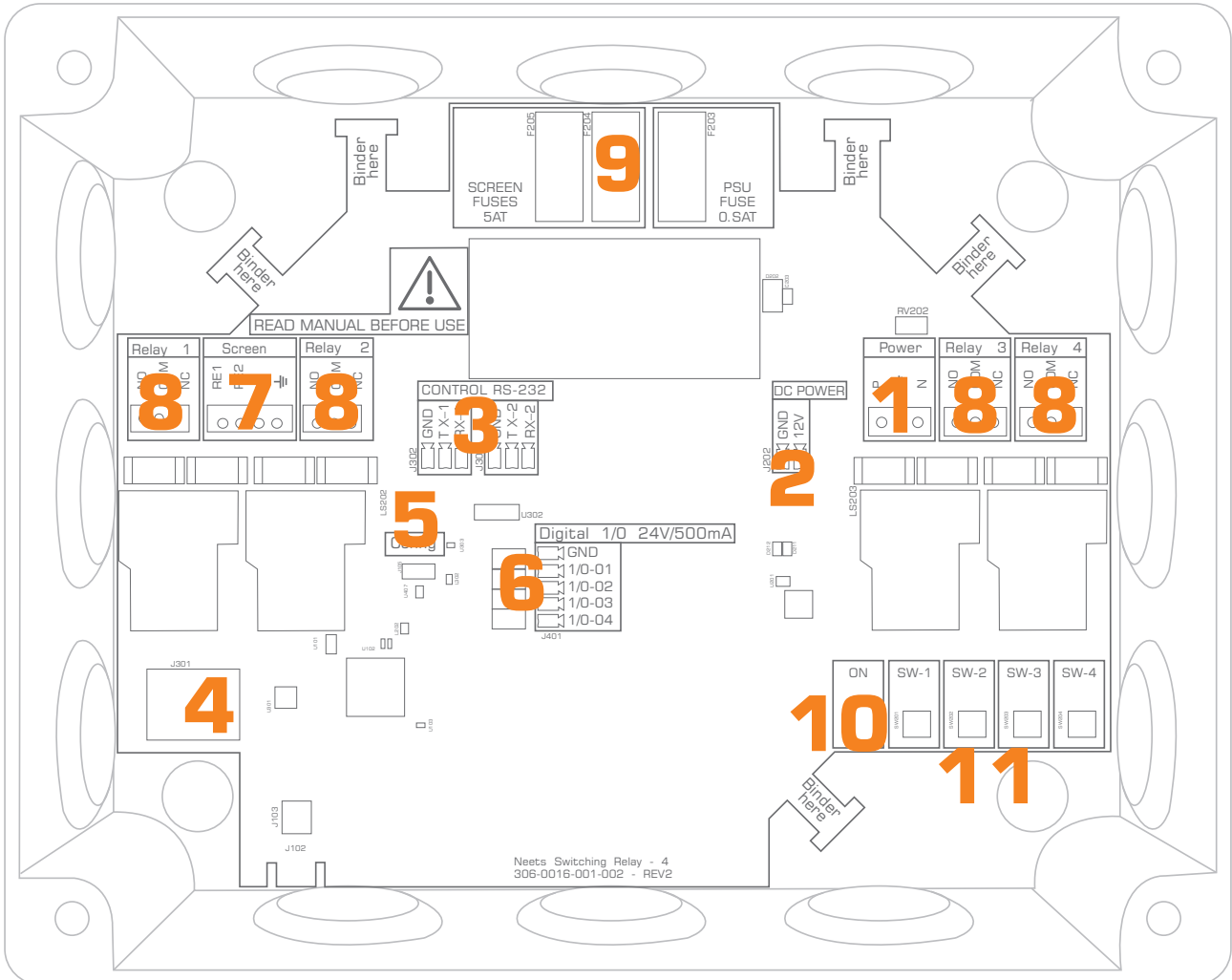
Width	265 mm
Depth	215 mm
Height	100 mm
Width	10,43 inches
Depth	8,46 inches
Height	3,93 inches

General

Weight	1 Kg/ 35 oz
Shipping dimensions (W/D/H) in mm	265 mm / 215 mm / 100 mm
Shipping dimensions (W/D/H) in inches	10,43 inches / 8,46 inches / 3,9 inches
Shipping weight	1 Kg/ 35 oz
Storage temperature	-20 °C to 50 °C
Storage moisture	Non condensing
Operation temperature	0 °C to 30 °C
Operation moisture	Non condensing

How to find

This section contains information about the connections and controls on the Relay - 4.

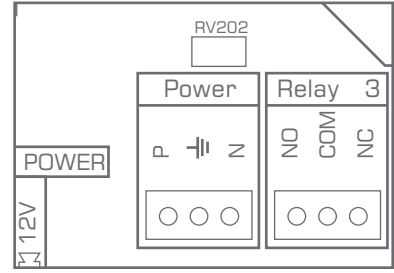


Number	Description
1	100-240 VAC power in.
2	DC power output.
3	2 x bi-directional RS-232 or IR transmitter.
4	1 x RJ-45 Network (LAN) connector.
5	Mini USB for firmware update functionality.
6	4 x digital I/O connectors.
7	1 x screen control with mutual blocking.
8	4 x potential-free relays.
9	Fuses for PSU and screen control.
10	Power and status indication.
11	LED relay status indication with and relay test buttons.

AC Power connector

The Relay - 4 is connected to the AC power line with the supplied terminal adaptor using an appropriate power cord. No power cord is supplied with the product.

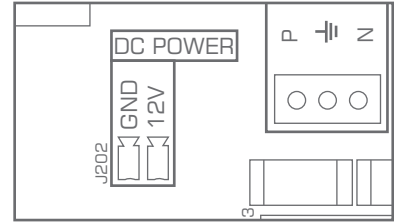
The Relay - 4 incorporates a universal mains power supply which accepts AC line input from 100 V to 240 V.



DC Power connector

The DC Power connector is used to supply external devices such as control systems or other peripheral devices connected to the Relay - 4.

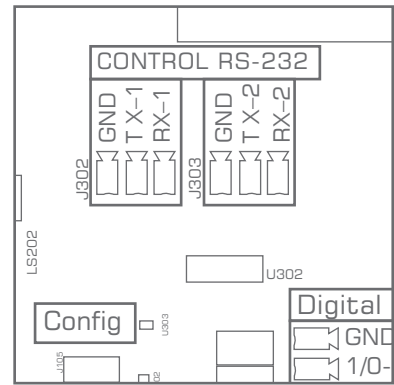
The power output supplies 12 V DC with up to 300 mA current.



RS-232/IR connectors

The onboard RS-232 ports (TX-1, RX-1, TX-2, RX-2) can be used for one- or two-way communication with external RS-232 compatible devices. Ports allow control of the Relay - 4 functions through the RS-232 port or enable the Relay - 4 to control external devices through LAN port connected gateway. Both of the ports also can function as IR transmitters when used together with a LAN gateway.

Please note that it is not possible to use one port as both RS-232 and IR at the same time.

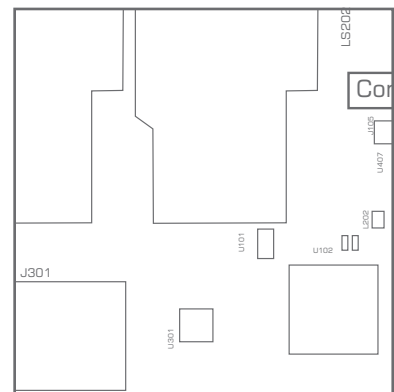


LAN connector

The network connector integrates the system into the local area network.

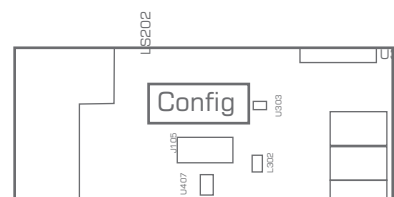
There are two LEDs on the connector with the following indication:

Color	Off	On	Blink
Yellow	No Link	Link	Activity
Green	10Mbit	100Mbit	



USB connector

The USB port (labeled "config") can only be used to upgrade firmware on the Relay - 4 through a Windows computer.



See “How to upgrade the Firmware” on page 15 for details.

The USB connector for connecting to the Relay – 4 is type “mini USB B 5P”. It is available on the web as a cable (USB A to Mini USB B 5P).

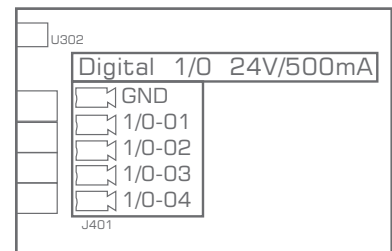
Digital I/O connector

The Relay – 4 has 4 x I/O (Inputs/Outputs) available. They can be used for an external control keypad, PIR (movement) sensor, keyboard lock, extra relays, or other compatible uses.

The ports are not potential free; you may need external relays if you need to prevent ground loops.

When used as outputs, the ports are active low. When indicated as active, the pins are tied to GND through a FET transistor (also called open drain/collector function). Each can draw up to 24VDC/500mA.

When used as inputs the voltage has to be below 1 Volt DC to be accepted as LOW, and above 4 VDC (but below 24 VDC) to be accepted as HIGH. The inputs are default HIGH and must be connected to ground in order to change state.

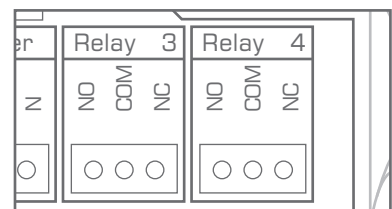
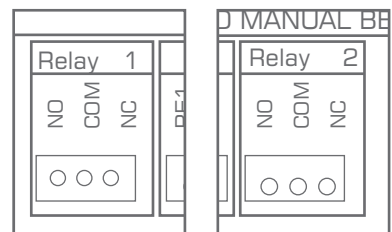


Relay connectors

The Relay – 4 has four relays, each of which allows the option of NO (Normal Open) and the NC (Normal Close) connections for greatest flexibility.

Using the supplied terminal blocks, you can connect cables directly to the Relay – 4 connectors for each individual relay. Use the supplied cable tie to fasten the cable to the Relay – 4 to prevent accidental disconnection of the cables.

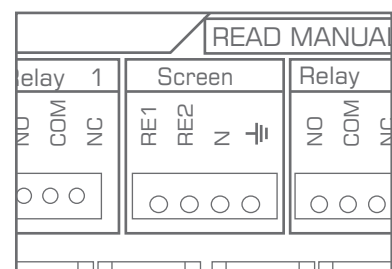
The COM and NC connections will be connected when the relay is released. The COM and NO connections will be connected when the relay is set.



Screen connector

The Relay – 4 enables control of an electrical screen or lift directly by 230 VAC using the dedicated screen control connector.

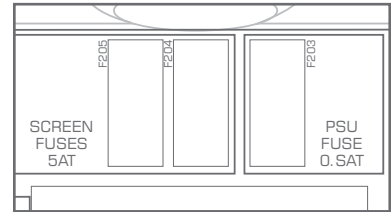
Please read the section regarding use of the screen mode for details.



Fuses

Three fuses are mounted on the Relay – 4 which are replaceable if faulty. For the built-in PSU a 0.5 AT fuse is used.

For screen connector two 5 AT fuses are used.



ON indicator

An ON LED indicator displays the current state of the Relay – 4.

Color	Status
White	Running
Blue	Starting
Red – Blinking	Error: See section on Error Indication for details
Off	No power supplied to the Relay – 4

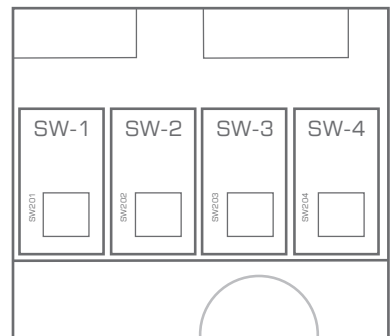


Relay indicators and test buttons

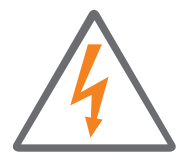
On the Relay – 4 you will find a LED indicator and a test button for each relay.

The buttons are used to test the relay function during system installation or when troubleshooting the AV installation.

The LED indicates the current relay state. When a relay is set, the corresponding LED lights up green.



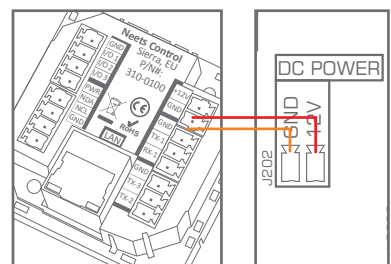
Please remember to disconnect the AC power supply when installing the product or changing the installation!



Powering a control system

You can power the connected control system or other external devices from the Relay – 4's built-in power supply through the DC Power connector.

Connect a suitable cable (min. 24 AWG) at the DC power connector with the supplied terminal block adaptor.



How to connect

This section will describe how to connect the Relay – 4 to the control system and other peripherals.

Using I/O pins

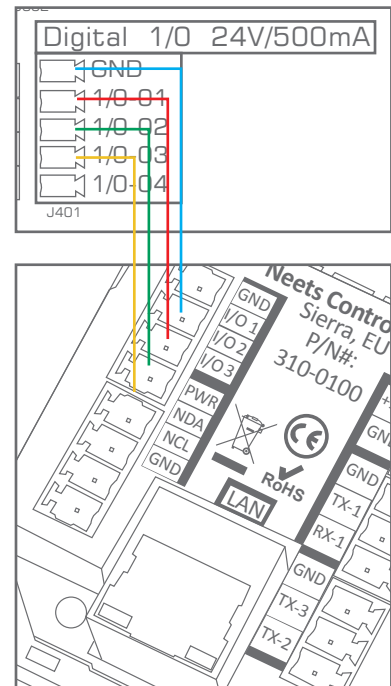
A simple connection as shown enables control of one or more relays from a digital output as provided by any of the Neets Control systems.

By default, the Relay – 4 is configured to link the I/O pins to the relays. This means that you can connect the I/O of the Neets Control system directly the Relay – 4.

The Relay – 4 also may be controlled by other, third-party systems.

Our I/O can interface with all systems that can pull the Input low. To test this, simply make a short circuit between the I/O pin and GND to activate the relay.

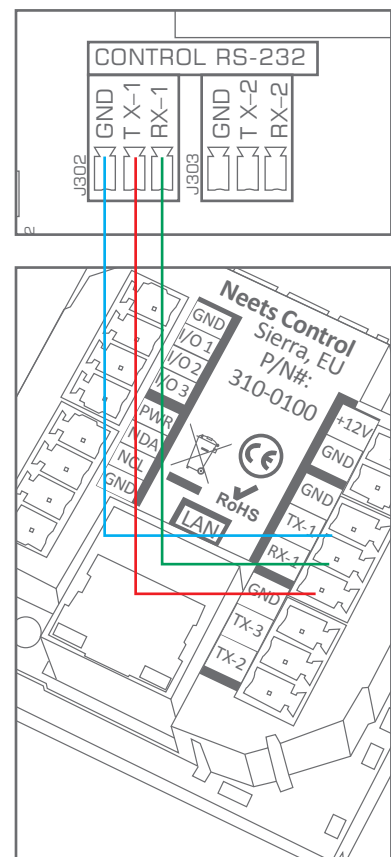
If the Relay – 4 has been used before, it is recommended that you reset the Relay – 4 to make sure that no prior settings that will prevent this operation are saved in the unit (See section page 15).



Using RS-232 to control the Relay - 4

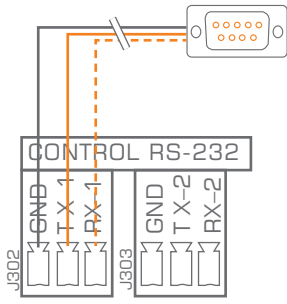
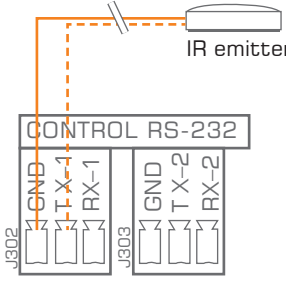
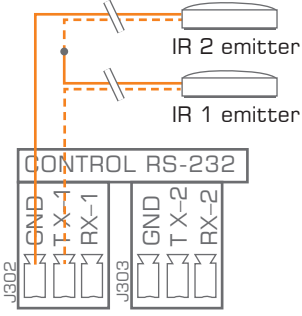
When controlling the Relay – 4 by RS-232 you have to connect the RS-232 port from the control system to the Relay – 4 RS-232 port 1 (TX-1, RX-1 and GND). The required commands can be found on page 14.

Remember, controlling Relay – 4 by both RS-232 and LAN is not possible at the same time.



Using the Relay – 4 as a gateway

Both of the RS-232/IR ports can be used as either RS-232 or as IR emitter gateways together with the LAN port.

		
<p>When used as RS-232 port: Connect the device to TX-1/ TX-2, RX-1/RX-2 and GND, as shown above.</p>	<p>When used as single IR port: Connect the IR emitter white striped wire to TX-1/TX-2 and the black wire to GND as shown above.</p>	<p>When used as dual IR port: Connect the first IR emitter white striped wire to TX-1 and first IR emitter black wire to second IR emitter white striped wire; connect second IR emitter black wire to GND, as shown above.</p>

Using the Relay – 4 as a gateway

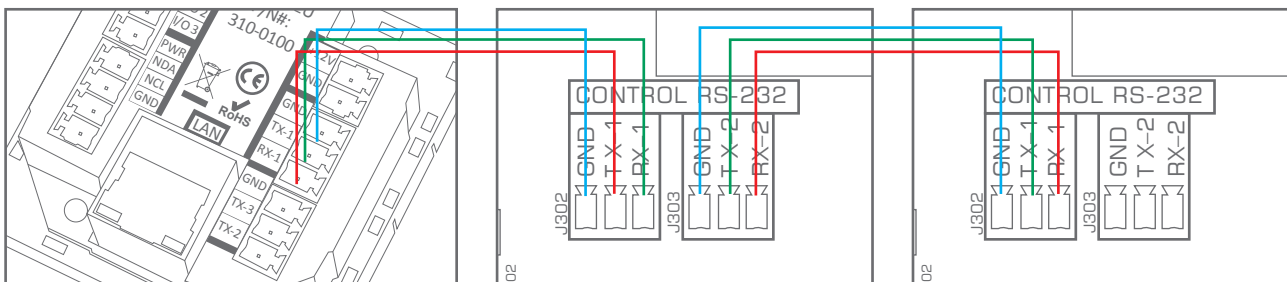
By default, one RS-232 line only allows connection to a single receiver. But with the Relay – 4 you can control multiple units with a single RS-232.

So, how do we do this? Each Relay – 4 can be assigned an id number (Default 1) that allows you to define which unit should respond to a given command.

If the Relay – 4 receives a command on TX-1 that has a command id number different from its assigned number, it will re-transmit the command on the TX-2 port. This function is called RS-232 loop-through.

So adding a second Relay – 4 to the first Relay – 4 will allow you to control this unit through the loop-through function by a single RS-232 control port.

Remember to assign different unit IDs to each of the Relay – 4 units you are using in this system. See page 12 for details on how to change the unit ID. Note: If the same ID number is assigned to multiple units, only the first Relay – 4 will react to the command; the command is not sent through to the next unit.



Using LAN

The Relay – 4 also can be controlled over LAN. This is done by creating a TCP connection from the control system to the control port (Default 5000).

The protocol that is used to control the Relay – 4 over LAN is the same as used when controlling it by RS-232. See the section on page 14. When connecting to the Relay – 4 control port, the RS-232 control on RS-232 port one is disabled.

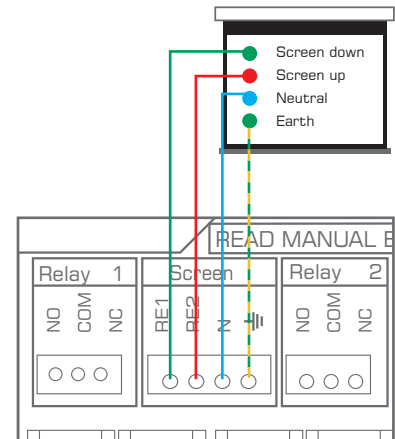
Controlling an electrical screen or lift

Relay 1 and Relay 2 connections are used to switch the power to the screen connector and therefore cannot be used for other purposes when used to control the screen. AC power to the screen is fed directly from the Relay – 4 power supply connector.

The relays used for screen mode are configured in mutual blocking mode; this makes it impossible to supply power to both screen-up and screen-down connections at the same time.

Please remember to insert the screen fuses supplied with the Relay – 4 in the screen fuse sockets when used in screen mode.

Control of this configurations depends on how the Relay – 4 is connected to your control system. The previous three sections provide information on the three types of control available.



Cable in/out of the box

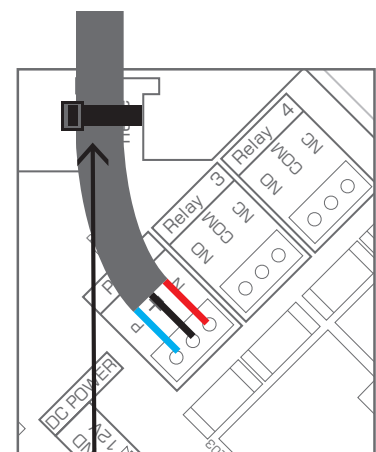
The relay box comes with rubber globs that allow you to use any cable size you want. The taps inside the box provide a secure and flexible means of safely fixing the cable.

Use the include binders to tie the cables as shown.

How to control Switching Relay – 4 through USB

After Project Designer 1.6.4 it is possible to control and configure the Switching Relay - 4 through USB the same way you do today with RS232.

When connecting the Switching Relay - 4 to your computer it will be installed as a RS232 port on your system (The Windows driver is already included in the Project Designer software). Choose your favorite hyperterminal program or simply open the device driver in the Device Editor and use it to send the commands.



Use included binders to secure the cables.

How to use

Change the ID number of the relay box

When controlling the Relay – 4 by the external protocol on either RS-232 or LAN, the unit has a unit ID number that must be used in the commands that are sent to it. By default the Relay – 4 has unit ID 1.

The ID number can be changed by RS-232, LAN or the relay test buttons on the unit.

To change the unit ID of the Relay – 4, see the command UNITID in the protocol list on page 20.

To change the unit ID of the Relay – 4 with the relay test buttons:

- Connect power to the unit.
- Within 5 sec, press one of the relay test buttons and hold it until its LED lights up.

When the Relay – 4 is powering up (power ON LED blue) it indicates its current unit ID on the relay status LEDs as shown below.

Relay box ID	LED status when power on	Test button to press when changing to this ID
1		Relay 1
2		Relay 2
3		Relay 3
4		Relay 4
Other		ID set by the external protocol to something different from 1-4.

Reset the unit to Factory Default

At any time you can press and hold the relay 1 and 4 test button in for 5 sec. The unit will reboot and resume the factory settings.

It is also possible to reset the Relay – 4 using the command RESET. See the external protocol for details.

Factory default settings

- I/O is set to inputs and controls the relays (I/O 1 ->relay 1, I/O 2 ->relay 2).
- RS-232 port 1: 19200 8N1, ready for loop-through.
- RS-232 port 2: 19200 8N1.
- IP Address: 192.168.254.252.
- LAN control port: TCP, port 5000.
- LAN to RS232 port 1: TCP, port 5011.
- LAN to RS232 port 2: TCP, port 5012.
- Neets LanBus: Multicast address: 224.10.10.25, port 7979.

How to upgrade the Firmware

In case you need to update the firmware on Neets Switching Relay – 4. Please follow these four simple steps below.

1. Install Neets Project designer 1.6.3 or higher
2. Connect the unit to your computer
3. Say “Yes” to upgrade the unit
4. The firmware is now completed




After a firmware upgrade all saved settings will be lost and have to be saved again.



Error indication

If there is an error in the system, it will be displayed on the status LEDs. On error the power led will flash red alternating with the Relay LEDs.

	<p>Unexpected Error</p>	<p>Turn off the power to the control system for 20 sec before turning the power on again.</p> <p>If the error is not resolved, contact Neets or your local distributor.</p>
---	-------------------------	---

RS-232 and LAN protocol

Controlling the Relay – 4 over either RS-232 or LAN is done with the same protocol. If you are using a Neets Control system there is a Device Driver available which provides you with all the commands below. Open the Device driver in the Neets Device Editor and use the “play” function on each command. This gives you an easy way to set up and configure the Relay – 4 from your computer.

Communications parameter

Default RS-232 settings:

Baudrate: 19.200

Databit: 8

Stopbit: 1

Parity: None

Default LAN settings:

Network Protocol: TCP

Control port: 5000 (Only one active connection at a time)

LAN to RS232 port 1 gateway port: 5011 (Only one active connection at a time)

LAN to RS232 port 2 gateway port: 5012 (Only one active connection at a time)

Control from the port is enabled by default. When connecting to a LAN control port the RS232 ports converts to LAN-RS232 gateways and they cannot be used to control the Relay - 4. The only way to get back to RS232 control is by cycling power.



Saving the settings: When adjusting the settings of the Relay – 4, it is important to save the settings that you want the Relay – 4 to use after the next power cycling. This is done with the Save command. You can find more information regarding Save on page 15.

Command

When entering all the commands in the Neets Device Editor software, select “Chr/ASCII” as input format. To understand the commands below please keep this in mind:

Please be aware that all the RS232 commands are case sensitive. If the Relay – 4 detects an error in the command line, the entire command will be ignored.

When entering all the commands in the Neets Device Editor software, select “Chr/ASCII” as input format. To understand the commands below please keep this in mind:

Symbol:	Description:
<A>	When constructing the command, this part must be replaced with a string or number.
	When constructing the command, this part must be replaced with a string or number.
\CR	Every command line must end with a carriage return. Carriage return is commonly referred to as “CR” or if you need to enter it in hex, the value is 0D and in decimal it is 13.
“,” or ,	When making a command it consists of several parts. Each part is separated with a comma. (See O) E.g. NEUNIT=1,RELAY=1,ACTION=SET,TIME=10.5

Please be aware that all the RS232 commands are case sensitive. If the Relay – 4 detects an error in the command line, the entire command will be ignored.

Sending multiple commands is possible without time delay between commands. Just remember that each command must end with \CR.

If you are looking for a complete list of ready-made commands, please refer to the premade device driver found in the Neets device driver library.

Example

Below you will find two commands that can control the Relay – 4. These commands are examples to demonstrate how the interface functions. For more details on the command go the next sections.

Examples of command that can be sent on either RS232 or LAN.

e.g: NEUNIT=1,RELAY=1,ACTION=SET\CR

Reply: NEUNIT=1,OK\CR

e.g: NEUNIT=1,RELAY=1,ACTION=? \CR

Reply: NEUNIT=1,RELAY=1,ACTION=RELEASE\CR

Global functions

In Global Functions you find all the functions that allow you to adjust the basic operations of the Relay – 4. Normally the functions are used while setting up the system. If you wish to use these settings after a power cycle of the Relay – 4, please remember to use the Save command.

Below are the settings for the Global Functions. For all commands it is mandatory that the start of the sequence look like this: NEUNIT=<A>

Where <A> as default is 1. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	Default <A>	R/W
Save the current settings as the default startup values.	SAVE=TRUE			W
Restore factory default values for the entire system.	FACTORYDEFAULT=TRUE			W
Set all the values to their default (last saved). This is done by re-booting the unit.	RESET=TRUE			W
Get/set unit ID. You can set the unit id number at the front of the unit using its relay test buttons. See general manual for more details. The IDs that can be assigned on the front are: 1, 2, 38. By RS232 or LAN you can define any ID that you want as long as it is no longer than 9 ascii characters. Example: NEUNIT=1, UNITID=Neets1\CR NEUNIT=1, UNITID=RoomA\CR	UNITID=<A>	Up to 9 characters-long.	1	R/W
Unit, SN.	UNITSN=<A>	xyyzzzzz		R
Unit software version.	SWVERSION=?	x.y.z		R

Example of use:

NEUNIT=1,UNITID=23\CR <- Set the ID number of the unit to 23.

LAN Settings

In the LAN Settings you will find the settings for the units' LAN parameters. Remember that if you want the unit to use the current settings at next power up, you have to send the Save command.

Below are the settings for the LAN port. For all commands the mandatory start sequence looks like this: NEUNIT=<A>,SETTINGS=LAN

Where <A> as default is 1. All commands must be started with a "," and all lines must end with a \CR

Description:	Syntax	<A>	Default <A>	R/W
Set unit IP address.	IPADDRESS=<A>	xxx.xxx.xxx.xxx	192.168.254.252	R/W
Set unit sub net.	SUBNET=<A>	xxx.xxx.xxx.xxx	255.255.255.0	R/W
Set gateway.	GATEWAY=<A>	xxx.xxx.xxx.xxx	192.168.254.252	R/W
Select if DHCP is used or not.	DHCP=<A>	ON, OFF	OFF	R/W
LAN speed (F = Full duplex, H = Half duplex)	SPEED=<A>	10F, 10H, 00F, 100H, AUTO	100F	R/W
Set control TCP Port.	IPPORT=<A>	0-65555	5000	R/W
Get the MAC address of unit.	MACADDRESS=<A>	xx:xx:xx:xx:xx		R
Set the multicast address the unit must use when communicating with other Neets units by LAN. (Remember, the changed value also must be set on all other systems communicating with this unit.) After changing the multicast address remember to send the Save command in order to make sure that the system uses this address at next reboot.	MULTICASTADDRESS=<A>	xxx.xxx.xxx.xxx	224.10.10.25	R/W

Set the multicast port the unit must use when communicating with other Neets units by LAN. (Remember, the changed value also must be set on all other systems communicating with this unit.) After changing the multicast port, remember to send the save command in order to make sure that the system uses this port at next reboot.	MULTICASTPORT=<A>	0-65555	7979	R/W
--	-------------------	---------	------	-----

Example of use:

```
NEUNIT=1,SETTINGS=LAN,IPADDRESS=192.168.10.2,SUBNET=255.255.255.0,
GATEWAY=192.168.10.1\CR
```

Relay control

Relay control includes simple commands such as “Set”, “Release” and “Toggle” the relays. More advanced control is possible as well, including delaying the execution of the command and setting the time that the “Set” function should apply.

Below are the possible settings of relays. For all commands, the mandatory start sequence looks like this: NEUNIT=<A>,RELAY=

Where <A> as default is 1, and is the relay you want to control. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	Default <A>	R/W
Control the relay.	ACTION=<A>	SET, RELEASE or TOGGLE	RELEASE	R/W
Delay before execution of action (Start delay).	DELAY=<A>	0-6500.0	0	W
Time (changes the action from latch to momentary in this time).	TIME=<A>	0-6500.0	0	W

Example of use:

```
NEUNIT=1,RELAY=1,ACTION=SET,TIME=10.5\CR <- This command sets relay 1 in 10.5 seconds.
```

To get the current status of a relay use this command:

```
NEUNIT=1,RELAY=1,ACTION=?\CR
```

Reply:

```
NEUNIT=1,RELAY=1,ACTION=RELEASE\CR
```

Screen control settings

The screen control provides an easy and safe way to control electrical screens and lifts using 2 relays or I/O. When combining 2 relays in screen mode, you define the screen up and down time once. After this, you simply send a command indicating the direction the screen should move. The Screen mode ensures that the 2 relays or I/O in no way can be activated at the same time.

Below are the settings for the screen control. For all commands the mandatory start sequence looks like this: NEUNIT=<A>,SETTINGS=SCREEN,SCREEN=

Where <A> as default is 1 and is the number of the screen to be configured. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	Default <A>	R/W										
Select the screen that should be configured.	SCREEN=<A>	<table border="1"> <thead> <tr> <th><A></th> <th>R/W</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>IO 1 and 2</td> </tr> <tr> <td>2</td> <td>IO 3 and 4</td> </tr> <tr> <td>3</td> <td>Relay 1 and 2</td> </tr> <tr> <td>4</td> <td>Relay 3 and 4</td> </tr> </tbody> </table>	<A>	R/W	1	IO 1 and 2	2	IO 3 and 4	3	Relay 1 and 2	4	Relay 3 and 4		W
<A>	R/W													
1	IO 1 and 2													
2	IO 3 and 4													
3	Relay 1 and 2													
4	Relay 3 and 4													
Enable or disable the screen mode.	ENABLED=<A>	TRUE or FLASE	FALSE	R/W										
Delay time, pause time between the two outputs can be activated.	BLOCKTIME=<A>	0-6500.0 second	0	R/W										
Up time; time it takes the screen to move from bottom to top of the screen.	UPTIME=<A>	0-6500.0 second	0	R/W										
Down time: time it takes the screen to move from top to bottom of the screen.	DOWNTIME=<A>	0-6500.0 second	0	R/W										

Example of use:

NEUNIT=1,SETTINGS=SCREEN,SCREEN=2,ENABLED=TRUE\CR <-Combine IO 3 and 4 on screen mode.

Example of use:

NEUNIT=1,SETTINGS=SCREEN,SCREEN=2,UPTIME=35,DOWNTIME=30,BLOCKTIME=1.5\CR <-Set screen 2 to a uptime of 35 sec, a down time to 30 sec and a block time to 1,5 sec.

Screen control

Below are the possible settings of screen control. For all commands the mandatory start sequence looks like this: NEUNIT=<A>,SCREEN=

Where <A> as default 1, and is the screen you want to control. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	R/W
Control the Screen.	ACTION=<A>	UP, DOWN, STOP	R/W

Example of use:

NEUNIT=1,SCREEN=2,ACTION=UP\CR <- This command makes screen 2 go up in the time defined by the command “UPTIME” found in the “Screen control settings” section.

Input/output settings

Below are the settings for the I/O. For all commands the mandatory start sequence looks like this: NEUNIT=<A>,SETTINGS=IO,IO=

Where <A> as default is 1 and is the number of the I/O you want to configured. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	Default <A>	R/W
Set the I/O to input or output	FUNCTION=<A>	INPUT or OUTPUT	INPUT	R/W
Set to use PUSH or PULL mode for status change on input. This is a global setting that applies for all IO. In PULL mode you have to request the status of all inputs for which you want to know the state, like this; NEUNIT=1,SETTINGS=IO,MESSAGE=PUSH\ CR In PUSH mode Relay – 4 will send a message when there is a change on one of the inputs. E.g. EUNIT=1,IO=1, STATUS=HIGH\ CR	MESSAGE=<A>	PUSH or PULL	PULL	R/W

Link input to relay activation. Input 1 is linked to relay 1. Input 2 is linked to relay 2. Input 3 is linked to relay 3. Input 4 is linked to relay 4. When a relay is linked to an input this will apply until they are either unlinked or a command that controls either the relay or the input is received.	LINK=<A>	TRUE or FALSE	TRUE	R/W
--	----------	---------------	------	-----

Example of use:

NEUNIT=1,SETTINGS=IO,IO=2,FUNCTION=INPUT\CR <- This set output 2 to input

Output control

Below is the possible control of I/O. For all commands the mandatory start sequence looks like this: NEUNIT=<A>,IO=

Where <A> as default is 1, and is the I/O you want to control. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	R/W
Control the output.	ACTION=<A>	SET, RELEASE or TOGGLE	R/W
Delay before executed of action (Start delay).	DELAY=<A>	0-6500.0 second	W
Time (changes the action from latch to momentary in this time).	TIME=<A>	0-6500.0 second	W
Read the input. reply example: NEUNIT=1,IO=1,STATUS=HIGH\CR	STATUS=?	HIGH, LOW	R

Example of use:

NEUNIT=1,IO=2,ACTION=SET,TIME=10.5\CR <- This command sets IO 2 in 10.5 seconds.

RS-232 settings

Below are the settings for the RS-232 . For all commands the mandatory start sequence looks like this: NEUNIT=<A>,SETTINGS=RS232=

Where <A> as default is 1, and is the RS232 port number to be configured. All commands must be started with a “,” and all lines must end with a \CR

Description:	Syntax	<A>	Default <A>	R/W
Set the comport baud rate.	BAUDRATE=<A>	1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200	19200	R/W
Set the comport data bit.	DATABIT=<A>	7, 8	8	R/W
Set the comport parity.	PARITY=<A>	NONE, ODD or EVEN	NONE	R/W
Set the comport stop bit.	STOPBIT=<A>	1 or 2	1	R/W
Set the comport TCP Port number (if used as LAN gateway).	IPPORT=<A>	0-65555	1:5011 2:5012	R/W

Example of use:

```
NEUNIT=1,SETTINGS=RS232=1,BAUDRATE=19200,DATABIT=7\CR
```

IR command (Advanced users)

On the Tx 1 and 2 it is also possible to send IR codes. Sending IR codes is only possible when controlling the unit over LAN.

Before you start working with IR commands it is important to understand that this part of the system is intended for advanced users and requires a high level of IR code knowledge. The format used for the IR codes is a commonly used format. This allows you to easily find IR codes from other sources than Neets, e.g. www.remotecentral.com.

If you want to control functions like volume on a device you should remember to retransmit the IR command as long as you want the volume to change. (Remember to wait for the acknowledgement of sending IR command before sending the next.)

Below are the settings for the IR. For all commands the mandatory start sequence looks like this:
NEUNIT=<A>,IR=

Where <A> as default is 1, and is the IR port number to use. All commands must be started with a "," and all lines must end with a \CR

Description:	Syntax	<A>	Format	R/W
Data container: The data are in RAW IR code format. Can be copied directly from Neets Device Editor.	DATA=<A>	Up to 500 byte of data	xxxx yyyy ... zzzz	R/W

Example of use:

```
NEUNIT=1,IR=2,DATA=0000 006D 0022 0002 0155 00AB 0015 0040 0016 0015 0015 0015 0016 0040 0015 0015 0015 0016 0040 0015 0040 0016 0015 0015 0015 0016 0015 0015 0015 0016 0015 0015 0015 0016 0015 0015 0015 0016 0040 0015 0040 0016 003F 0016 0040 0015 0040 0016 003F 0016 0040 0015 05E9 0156 0055 0016 0E3F\CR <-Sending a IR command on the Tx 2 port.
```