



network

VikinX User Manual

SL-T6464(-CP)/SL-T3232(-CP)
SL-T1616(-CP)/SL-T0808(-CP)

Telecom Routers in the VikinX Sublime series

Network Electronics AS

Nordre Kullerød 1
P.O. Box 1020
N-3204 Sandefjord, Norway

Phone: +47 33 48 99 99

Fax: +47 33 48 99 98

Email: support@network-electronics.com

www.network-electronics.com

Support Phone: +47 90 60 99 99

Revision history

Current revision of this document is the uppermost in the table below.

Rev.	Repl.	Date	Sign	Change description
0	-	2008-06-20	NBS	First release, based on SD/HD manual Rev.12.

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1 Product overview

Network Electronics are proud to present the 2nd generation of the compact small and medium routing switcher family, Sublime. With Sublime, Network Electronics now provide a stable and proven product line including the *most complete* signal format and size offering available.

With the new ultra slim, multi format and flexible product range, Sublime fulfils the most demanding requirements from the professional broadcast market.

This User Manual presents the features, installation and operation procedures of the *Telecom routers* of the Sublime range.

- Meets ITU-T G.703 for CMI coded signals (140/155Mbps)
- Meets ITU-T G.703 for HDB3 coded signals (34/45Mbps)
- Router range from 8x8 to 64x64
- Software based Configurator for easy system set-up
- TCP/IP, RS-232 and NCB Control (RJ-45)
- Programmable multi- single- and dual bus control panels
- Ultra Slim frame depth
- Low Power, high reliability design
- Redundant power supply system with front indicators
- Interoperability with existing VikinX routers
- Future proof and flexible product range

VikinX Sublime provides many of the powerful control features that drove the VikinX Modular range to success. VikinX Sublime is ideal for general purpose facilities, on-air routing, mobile outside broadcast applications and sophisticated A/V applications.

1.1 Product versions

The following versions of the VikinX Sublime 140/155Mbps Telecom routers are available:

140/155Mbps Telecom – 19” - 1RU, depth 5cm:

SL-T0808 / SL-T0808-CP	8x8 Telecom Router (140/155Mbps). Ethernet/RS-232/NCB control, router partitioning, programmable X-Y control panel (on CP version)
SL-T1616 / SL-T1616-CP	16x16 Telecom Router (140/155Mbps). Ethernet/RS-232/NCB control, router partitioning, programmable X-Y control panel (on CP version)

140/155Mbps Telecom – 19” - 2RU, depth 5cm:

SL-T3232 / SL-T3232-CP	32x32 Telecom Router (140/155Mbps). Ethernet/RS-232/NCB control, router partitioning, programmable X-Y control panel (on CP version)
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140/155Mbps Telecom – 19” - 4RU, depth 5cm:

SL-T6464 / SL-T6464-CP	64x64 Telecom Router (140/155Mbps). Ethernet/RS-232/NCB control, router partitioning, programmable X-Y control panel (on CP version)
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By combining VikinX Sublime Analog Video routers with VikinX Compact 34/45Mbps reclocking units (RECL-8), the following 34/45Mbps telecom routers are available:

34/45Mbps Telecom – 19” - 2RU, depth 5cm:

SL-V0808 / 8x8 Telecom Router (34/45Mbps). Ethernet/RS-232/NCB control,
SL-V0808-CP + router partitioning, programmable X-Y control panel (on CP
1x RECL-8 version)

34/45Mbps Telecom – 19” - 3RU, depth 5cm:

SL-V1616 / 16x16 Telecom Router (34/45Mbps). Ethernet/RS-232/NCB
SL-V1616-CP + control, router partitioning, programmable X-Y control panel (on
2x RECL-8 CP version)

34/45Mbps Telecom – 19” - 6RU, depth 5cm:

SL-V3232 / 32x32 Telecom Router (34/45Mbps). Ethernet/RS-232/NCB
SL-V3232-CP + control, router partitioning, programmable X-Y control panel (on
4x RECL-8 CP version)

34/45Mbps Telecom – 19” - 12RU, depth 5cm:

SL-V6464 / 64x64 Telecom Router (34/45Mbps). Ethernet/RS-232/NCB
SL-V6464-CP + control, router partitioning, programmable X-Y control panel (on
8x RECL-8 CP version)

Available Control Panels – 19” – 1RU:

SL-16XY-CP Multi bus X-Y 16x16 panel.
SL-8XY-CP Multi bus X-Y 8x8 panel.
SL-16D-CP Dual bus 16x2 panel.
SL-32S-CP Single bus 32x1 panel.
SL-32S-CP-GPI Single bus 32x1 panel with GPI / Joystick / Tally interface.
SL-16S-CP Single bus 16x1 panel.
SL-16S-CP-GPI Single bus 16x1 panel with GPI / Joystick / Tally interface.
SL-8S-CP Single bus 8x1 panel.
SL-8S-CP-GPI Single bus 8x1 panel with GPI / Joystick / Tally interface.
SL-16XY-CP Multi bus X-Y 16x16 panel.

Available Control Panels – 19” – 2RU:

SL-32XY-CP Multi bus X-Y 32x32 panel.
SL-64S-CP Single bus 64x1 panel.
SL-64S-CP-GPI Single bus 64x1 panel with GPI / Joystick / Tally interface.

Available Control Panels – 19” – 4RU:

SL-64XY-CP Multi bus X-Y 64x64 panel.

2 Specifications

2.1 Mechanics

- Router dimensions:
- HxWxD = 44x483x50mm, (19", 1RU);
 - HxWxD = 88x483x50mm, (19", 2RU);
 - HxWxD = 176x483x50mm, (19", 4RU).

Safety/Emission standards: Compliant with CE EN55103-1 and 2.

2.2 Power Supply

- SL-PWR-90 90W Power Supply Unit for SL-V6464(-CP).
SL-PWR-40 40W Power Supply Unit for all other routers.
DP AC +/-5V/35W 35W Power Supply Unit for RECL-8 unit(s).
AC Supply voltage range: 100-240VAC, 50-60Hz,
 - Max 1.6A (SL-PWR-40) / Max 3A (SL-PWR-90);
 - Max 1.6A (DP AC +/-5V/35W).
AC Mains connector: IEC 320.
DC output:
 - +15V, max. 4A / -15V, max 2.5A. Maximum 90W for SL-V6464(-CP);
 - +15V, max. 2.2A / -15V, max 1.35A. Maximum 43W for all other routers;
 - +5.3V, max 5A / -5.3V, max 3.5A. Maximum 35W for RECL-8.
DC connector: DB9, female.
Status monitoring:
 - Via LED in front of the router/CP,
 - Via GPI for monitoring by 3rd party.

2.2.1 Power Alarm GPI¹

- Connector: DB9, female.
Signal type: Open collector transistor.
Maximum voltage: 30 V
Maximum current: 100 mA

2.3 Control

Standard Features:

- Serial port: RS-232 for protocol conversion, to VikinX compact control protocol, or to third party protocols.
Connector: DB9, female.
NCB ports: For integration with VikinX compact router configuration.
Connectors (2): RJ45 (1 In / 1 Out).
Ethernet port: 10/100BaseT Ethernet bus for external router control.
Connector: RJ45.

¹ Not applicable on the RECL-8 unit; only on Sublime routers and control panels.

- Synchronization²:
- Analog Black Burst, Looped. Both PAL and NTSC supported.
 - Tri-Level, Looped. For HD signal formats only.
 - Distribution of synchronization signals between several routers.
- Connector(s): BNC.

Optional Features:

- Control Panel:
- Optional, built-in control panel available.
 - External control panels available.

2.4 140/155Mbps Telecom specifications

Supported formats:

Telecom: 140Mbps / 155Mbps G.703 CMI.

Electrical signal inputs:

Standard: ITU-T G.703 for CMI coded signals.
Data rate: 140Mbps / 155Mbps.
Connector: 75 ohm BNC female.
Impedance: 75 ohm nominal.
Return loss: > 15dB (5-540Mhz).
Cable equalization: 0 to 250m, typical Belden 8281.

Electrical signal outputs:

Connector: 75 ohm BNC female.
Impedance: 75 ohm nominal.
Return loss: > 15dB (5-540Mhz).
Signal level: 1000mVp-p ±10%.
Rise / fall time:

- 20% - 80%
- 0.4ns – 1.5ns, < 0.5ns rise/fall variation.

Amplitude overshoot: < 10%.
Signal polarity: Non-inverting electrical with respect to inputs.

Signal transition:

Jitter: < 0.2 UI, both timing and alignment jitter.

Reference inputs:

Connector: 75 ohm BNC female, loop-thru.
Return loss:

- > 40dB (100kHz – 5Mhz)
- > 35dB (5-10MHz).

² Synchronization of a telecom router is not strictly necessary, but an available feature for users who intend to switch this router synchronized to video, using video synchronization signals. Normally not applied for routing CMI or HDB3 coded signals.

Signal format:	NTSC or PAL Black Burst.
Signal level:	Nominal 1.0Vp-p.
Switching Field:	Field 1.
Timing:	<ul style="list-style-type: none">– PAL: within clock-intervals (27MHz) 565 – 835 in line 6– NTSC: within clock-intervals (27MHz) 565 – 835 in line 10.

2.5 34/45Mbps Telecom specifications

Supported formats:

Telecom: 34Mbps / 45Mbps G.703 HDB3.

Electrical signal specifications:

Frequency response:	100kHz – 5MHz: +0/-0.1dB 100kHz – 30MHz: ± 0.5 dB 0Hz – 125MHz: +0.5/-3dB.
Return loss:	> 40dB @5.5MHz, 75 ohm BNC > 35dB @10MHz.
Output DC offset error:	< 15mV DC.
Gain:	0dB ± 0.1 dB.
Crosstalk:	< -60dB up to 5MHz.
Differential gain:	< 0.1%, for routers up to 16x16; < 0.2%, for 32x32 and 64x64 routers.
Differential phase:	< 0.1°, for routers up to 16x16; < 0.2°, for 32x32 and 64x64 routers.
Bar tilt:	< 0.1%.
Lum. Non-linearity:	< 0.1%, for routers up to 16x16; < 0.2%, for 32x32 and 64x64 routers.
Video S/N:	> 70dB, unweighted
Max. signal level:	> 2Vpp.
Delay difference, any input to one output:	< ± 1 nsec.
Connector:	75 ohm BNC female.
Impedance:	75 ohm nominal.

For more details on RECL-8, see User Manual for this device here:

[RECL8_user_manual.pdf](#)

Reference inputs:

Connector:	75 ohm BNC female, loop-thru.
Return loss:	> 40dB (100kHz – 5Mhz) > 35dB (5-10MHz).
Signal format:	NTSC or PAL Black Burst.
Signal level:	Nominal 1.0Vp-p.
Switching Field:	Field 1.
Timing:	<ul style="list-style-type: none">– PAL: 30us ± 5us after hsync in line 6– NTSC: 30us ± 5us after hsync in line 10.

2.6 Connection details

Available service connectors at the back panel of the Sublime Routers³:



- SYNC: Synchronization signal (in). Black burst/composite/tri-level sync reference input with passive loop-through for vertical interval switching.
- LOOP: Synchronization signal (out). Loop-through of SYNC input.
- NCB IN: Network Control Bus Input. The protocol of this bus is equal, and compatible to the MIDI bus protocol.
- NCB OUT: Network Control Bus Output.
- ETHERNET: 10/100Base-T Ethernet bus for external router control.
- RS 232: RS-232 for external control protocols.
- POWER A: $\pm 15\text{VDC}$ Power Input.
- POWER B: $\pm 15\text{VDC}$ Power Input, redundant supply.
- CONFIGURATION: Configuration switches (8 pcs).

2.6.1 Power Supply pinout

The DB9 power pinout for Sublime routers and Control Panels are as follows;

Pin #	Description
1	GND
2	<i>Not connected</i>
3	Power Alarm GPI output
4	+15VDC
5	<i>Not connected</i>
6	<i>Not connected</i>
7	<i>Not connected</i>
8	-15VDC
9	<i>Not connected</i>

Please see Chapter 2.2.1 and Chapter 3.3 for further description of the GPI output (Pin #3).

³ Note that the picture shows a 1RU Sublime router. However, the service connectors are identical to the above also on the 2RU and 4RU units. The only connectors that differ are the applicable signal connectors.

The DB9 power pinout for RECL-8 is as follows;

Pin #	Description
1	GND
2	+5VDC
3	<i>Not connected</i>
4	<i>Not connected</i>
5	<i>Not connected</i>
6	-5VDC
7	<i>Not connected</i>
8	<i>Not connected</i>
9	<i>Not connected</i>

3 Configuration

In order to get an overview of the parts that form the Sublime Telecom Routers this chapter will highlight some of the main components.

3.1 Router level

Switches 1 - 4 on the configuration switch set the router's level for communication with the Router Management System and other units in the NCB system. The panels on the NCB dedicated to operate with the router must be configured to the same level as that router.

If several routers are combined to form an Audio Follow Video, RGB or similar system, these routers must be configured to the same level.

The levels can be switched according to the following pattern:

SW 1	SW 2	SW 3	SW 4	Level	NCB Address
OFF	OFF	OFF	OFF	1	0
OFF	OFF	OFF	ON	2	1
OFF	OFF	ON	OFF	3	2
OFF	OFF	ON	ON	4	3
OFF	ON	OFF	OFF	5	4
OFF	ON	OFF	ON	6	5
OFF	ON	ON	OFF	7	6
OFF	ON	ON	ON	8	7
ON	OFF	OFF	OFF	9	8
ON	OFF	OFF	ON	10	9
ON	OFF	ON	OFF	11	10
ON	OFF	ON	ON	12	11
ON	ON	OFF	OFF	13	12
ON	ON	OFF	ON	14	13
ON	ON	ON	OFF	15	14
ON	ON	ON	ON	16	15

Default level is 1.

3.2 Router mode

The router mode function is not in use on Sublime Telecom routers. Switches 5 – 6 on the configuration switch must always be in position OFF.

3.3 Power alarm

The power alarm can be switched according to the following pattern:

SW 7	Power alarm
OFF	Disables Power Alarm
ON	Enables Power Alarm

Default setting is Power Alarm disabled.

3.3.1 Power alarm on GPI output

The SL-PWR-40/SL-PWR-90 has a GPI output for alarm. This alarm is an open collector from pin 3 to GND (Pin 1) on the PSU connector. *Hint: Use a standard Y-cable and wire the "free" connector to the automation system.*

Pin 3 and GND (Pin 1) are closed contact as long as the power is OK; when the power is failing it will become open. The GPI output can switch a maximum load of 100mA at 30V.

Any device to be controlled by the GPI outputs (lamp, LED or similar) needs to be connected to an external supply voltage on one end and to the GPI output on the other end.

3.4 Power-up mode / Extension enable

Switch 8 on the configuration switch defines the power up mode on NxN square routers. The Sublime router provides two modes for powering up the system.

The power up options can be switched according to the following pattern:

SW 8	Power Up mode
OFF	Switches all outputs according to the buffered information in the routers processor system.
ON	Switches all outputs to input 1.

Default setting switches all outputs according to the buffered information in the routers processor system.

3.5 Configuring output on Single bus panels

See Chapter 7.1, section *Input* for configuring default output to be controlled from a Single bus control panel.

4 LED status indication

4.1 Start-up

The LED located at the front of the router indicates the status of the router. At start-up, the LED will alternate between red (R) and green (G) every 500ms for about two seconds. After the start-up sequence the LED will indicate the Alarm state of the router.

There are two LEDs located at the Ethernet bus. At start-up the boot loader is searching for update commands on the serial port for about two seconds. During this sequence both Ethernet LEDs will be blinking. After the start-up sequence the LEDs will indicate the Ethernet state.

4.2 Alarm states

The LED can either be red (R), green (G), yellow (Y) or have no light (N).

The LED state is here described with twenty letters, each representing 100ms, which totals to an alarm sequence of two seconds. The X indicates that the LED keeps the color it has the moment the alarm sequence begins (green, yellow or no light).

Description	LED state	Alarm	Comment
Continuous green light	GGGGG GGGGG GGGGG GGGGG	No alarm. Status is OK.	
Continuous yellow light	YYYYY YYYYY YYYYY YYYYY	Unable to connect to controller over Ethernet.	This alarm will be overwritten by other alarms
Long red blinks	RRRRR NNNNN RRRRR NNNNN	Power is too low.	
One short red blink	RXXXX XXXXX XXXXX XXXXX	Power A failed	Only active if power alarm dip is set.
Two short red blinks	XXXXX XXXXX RXRXX XXXXX	Power B failed	Only active if power alarm dip is set.

4.3 Ethernet states

The LEDs that are located at the Ethernet bus will after the Start-up sequence indicate the Ethernet states:

	On	Off / Blinking
Green	Valid link	No link
Yellow	No data	Data is transmitted or received

5 Router communication

You gain access to router for communication purposes by connecting either the router's serial port to your computer or by using an Ethernet connection.

Do *not* use both the router's Ethernet port and RS-232 serial port, or NCB ports, at the same time. Doing so may cause loss of important communication and control data.

5.1 Serial connection

Connection can be made through the serial port(s) of the router; see also Chapter 2.6 for connection details.

The communication parameters are configurable. Please refer to the protocol documentation of the appropriate communication/control protocol.

Example: The protocol parameters of the VikinX Compact routers are as follows:

- Bit rate 19200 bit/s
- Data bits 8 bits
- Stop bits 1
- Parity: No parity

For further detail concerning this protocol, please refer to the following manual: Compact Router Control Protocol. This manual can be found under the "Support" tab on our web site: <http://www.network-electronics.com>.

The DB9 female connector for the serial port(s) of the router has the following pin-out:

Pin #	RS-232 mode
1	Not in use
2	Tx
3	Rx
4	Not in use
5	GND
6	GND
7	RTS
8	CTS
9	Do Not Connect!

Note that if the standard RS-232 cable specification (DCE) is followed:

A cable with Male+Male or Female+Female connectors at the cable ends is used for Rx/Tx crossed connection.

A cable with Male+Female connectors at the cable ends is used for a straight through connection.

5.2 Maximum cable length (RS-232)

IEEE has specified the maximum cable length for an RS-232 connection to 15m. Longer distances can be installed depending on the environmental conditions of the installation site. It is the responsibility of the installer / user to secure a proper installation of the RS-232 connection.

5.3 Ethernet connection

The connections follow the standard set by the IEEE 802.3 100BaseTX specification. The cables that are to be applied should be CAT-5 / CAT-5E standard, or better. It is the responsibility of the installer / user to secure a proper installation of the Ethernet connection.

All VikinX Sublime routers and IP-based Control Panels are connected together through an Ethernet Switch.

A VikinX Sublime device can only have one open Ethernet connection. If redundant control is required, this limitation has to be solved by the control system.

For Ethernet protocol details concerning this router, please refer to the following manual: Modular Router Control Protocol. This manual can be found on our web site: <http://www.network-electronics.com>.

5.4 NCB connection

Via the Network Control Bus system several routers and control panels can be interconnected.

Up to 16 levels of routers, or combinations of routers, can be controlled. The NCB system and all RS 232 ports interchange the system status. This means that any control system, either from Network, or from a third party manufacturer, connected to any RS 232 port in the NCB loop, will have access to all communication data on the bus.

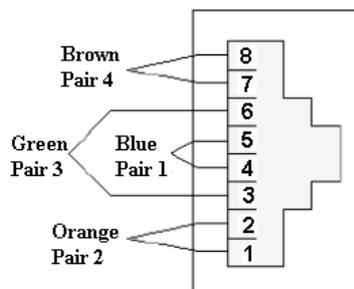
5.4.1 Connecting control panels

To get a control panel working with a specific router, configure the control panel to the same level as the router. Several panels can be configured to control the same router. Panels can also be connected to a router via the RS-232 interface. Please refer to your control panel manual for installation.

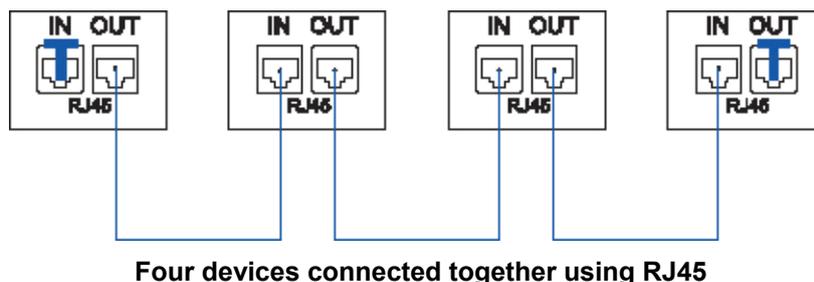
5.4.2 Pin-out and cable type

VikinX Sublime routers and Control Panels use RJ45 connectors for the Network Control Bus ports. The following pin-out is used:

- Pin #1 Not Connected
- Pin #2 Not Connected
- Pin #3 Data (retour)
- Pin #4 Data
- Pin #5 Data
- Pin #6 Data (retour)
- Pin #7 Not Connected
- Pin #8 Not Connected



The following connection example shows connection of 4 VikinX devices with RJ45 connectors and bus termination:



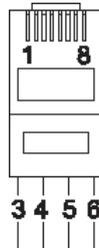
Four devices connected together using RJ45

Note that each device at the end of the chain has a termination plug, indicated with the letter “T”. This termination plug must be inserted in the correct connection port. If not, no NCB communication is possible.

5.4.3 Termination plug

The termination plug that is mentioned in the previous chapter is necessary when you want to avoid closing the loop by a (long) cable.

The termination plug is a standard RJ45 plug with the following internal wiring:



RJ45 Termination plug

As seen in the figure above, *Pin 3* is connected to *Pin 4*, and *Pin 5* is connected to *Pin 6*.

5.4.4 Control bus structure

The Network Control Bus structure follows the standard MIDI bus definition. The NCB is defined as a closed chain of units. This means that the NCB OUT of the last unit must be connected to the NCB IN of the first unit in the NCB chain. To avoid problems with the control of VikinX units the installer/user has to assure that the bus structure is installed according to this definition.

The total number of VikinX devices in an NCB chain is limited to 50.

5.4.5 Maximum distance between NCB devices

The standard MIDI definition allows a maximum cable length of 200-250 meters between two devices. Longer distances can be made with MIDI repeater units. To avoid grounding problems all NCB ports have opto-coupled inputs.

6 Connecting signal cables to the Sublime router

The Sublime Telecom Router offers standard 75Ohms BNC connectors for video in- and outputs. All video inputs are terminated with 75Ohms.

7 Control Panel operation

This chapter is only applicable for routers with the optional local control panel.

All local control panels are completely configurable with the System Configurator, which is downloadable from the Support pages at <http://www.network-electronics.com/>

All local control panels are given a default configuration, which includes the buttons “A/V Toggle”, “Panel Enable”, “Take on/off” and “Take”. In addition input and output buttons are preconfigured.

7.1 Button description

A/V Toggle

The A/V Toggle button enables/disables audio and video on a specified address. The address can either be read from the dip switches, or be fixed. The button toggles between three states.

If the button is pressed for more than 1 second, it will go into a fourth state where both audio and video are disabled.

In this state the button will be dimmed. If the button is pressed for more than 1 second again, it will enable both audio and video if present.

Button Color	Video Enabled	Audio Enabled
Yellow	Yes	Yes
Green	Yes	No
Red	No	Yes
Dimmed	No	No

If neither audio nor video is present, it will be marked as disabled and the toggle state will not be used.

Toggle status changes will be stored in flash and used when the panel is powered up later.

Panel Enable

If a Panel Enable button is present, the panel will start up not enabled. In this state the button will be red and all the other buttons will be disabled. When pressing the button the panel will be enabled and the color will change to green. A status request will also be sent to get information on active levels.

If no Panel Enable button is present, the panel will start up enabled.

Take on/off

The Take on/off button enables or disables the Take button. If no take button is defined, Take on/off is always off. On first start-up the take button is enabled. Later it will read the last status from the flash memory.

Take

The Take buttons LED is normally off. If the Take on/off button is set to “on”, no commands will be sent from the panel until the Take button is pressed. The last selected buttons and the take button will blink, until the Take button is pressed and the command is sent from the panel.

Output

An Output button is used for selecting an output. Selecting an output activates it, so that it is switched to the next input that is selected.

Input

An Input button switches the active output to the selected input. If the Take button is enabled, the switch will not be executed until the Take button is pressed.

When switching using the Input button, all enabled audio- and video-levels will be switched from the selected input to the active output.

The Input button can also be used to select the active output. This is useful on single bus panels. It requires that a Panel Enable button is present. When the panel is enabled, press the Panel Enable button and hold it while selecting the active output by pressing an Input button. Then release the Panel Enable button. The panel will now be disabled. Press the Panel Enable button again to enable it.

XY

An Input to Output (XY) button switches a preset input to a preset output on all enabled audio- and video-levels. If the Take button is enabled, the switch will not be executed until the Take button is pressed.

Salvo

A Salvo button switches a sequence of cross points. This is done even if the specified audio- or video-level is disabled.

Lock

A Lock Toggle button toggles the lock-status on the active output on all enabled audio- and video-levels. If the active output on any of the enabled levels is locked before pressing the button, they will be unlocked. If not the active output on all enabled levels will be locked. A locked output can't be switched.

General environmental requirements for Network Electronics equipment

1. The equipment will meet the guaranteed performance specification under the following environmental conditions:
 - Operating room temperature range: 0°C to 45°C
 - Operating relative humidity range: <95% (non-condensing)

2. The equipment will operate without damage under the following environmental conditions:
 - Temperature range: -10°C to 55°C
 - Relative humidity range: <95% (non-condensing)

Product Warranty

The warranty terms and conditions for the product(s) covered by this manual follow the General Sales Conditions by Network Electronics AS. These conditions are available on the company web site of Network Electronics AS:

www.network-electronics.com

Important notes regarding Software in the VikinX Sublime Router series

This product utilizes software components that are licensed with open source licenses. The source code for these components and our modifications are available from: <http://labs.network-electronics.com/open-source/>.

OpenTCP includes software developed by Viola systems (<http://www.violasystems.com/>).

Appendix A Materials declaration and Recycling information

A.1 Materials declaration

For product sold into China after 1st March 2007, we comply with the “Administrative Measure on the Control of Pollution by Electronic Information Products”. In the first stage of this legislation, content of six hazardous materials has to be declared. The table below shows the required information.

組成名稱 Part Name	Toxic or hazardous substances and elements					
	鉛 Lead (Pb)	汞 Mercury (Hg)	鎘 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
All products referred to in Chapter 1.1	○	○	○	○	○	○
SL-PWR-40	○	○	○	○	○	○
SL-PWR-90	○	○	○	○	○	○
DP AC +/-5V/35W	○	○	○	○	○	○
<p>O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.</p> <p>X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.</p>						

This is indicated by the product marking:



A.2 Recycling information

Network Electronics AS provides assistance to customers and recyclers through our web site <http://www.network-electronics.com>. Please contact Network Electronics AS's Customer Support for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to Network Electronics AS or its agents for recycling, the following general information may be of assistance:

- Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
- All major parts are marked or labeled to show their material content.
- Depending on the date of manufacture, this product may contain lead in solder.
- Some circuit boards may contain battery-backed memory devices.

EC Declaration of Conformity



MANUFACTURER	Network Electronics AS P.B. 1020, N-3204 SANDEFJORD, Norway	
AUTHORISED REPRESENTATIVE (Established within the EEA)	Not applicable	
MODEL NUMBER(S)	SL-T0808 SL-T0808-CP SL-T1602 SL-T1602-CP SL-T1616 SL-T1616-CP	
DESCRIPTION	Telecom Routers in the VikinX Sublime series	
DIRECTIVES this equipment complies with	LVD 73/23/EEC EMC 2004/108/EEC	
HARMONISED STANDARDS applied in order to verify compliance with Directive(s)	EN 55103-1:1996 EN 55103-2:1996 EN 60950-1:2006	
TEST REPORTS ISSUED BY	Notified/Competent Body	Report no:
	Nemko	E08443.00
TECHNICAL CONSTRUCTION FILE NO	Not applicable	
YEAR WHICH THE CE-MARK WAS AFFIXED	2008	
TEST AUTHORIZED SIGNATORY		
MANUFACTURER	AUTHORISED REPRESENTATIVE (Established within EEA)	Date of Issue
	Not applicable	2008-01-31
		Place of Issue
		Sandefjord, Norway
Name	Thomas Øhrbom	
Position	Quality Manager (authorized signature)	

Thomas Øhrbom
NETWORK ELECTRONICS ASA
O.nr. 976 584 201 MVA