NK Series

NK-JBX Geneos RCP Interface

User Guide

Live Production Technology™

NK-JBX · User Guide

- Ross Part Number: **9807DR-0110-1.0**
- Release Date: March 18, 2011. Printed in Canada.

The information contained in this Guide is subject to change without notice or obligation.

Copyright

Patents

This product is protected by the following US Patents: 4,205,346; 5,115,314; 5,280,346; 5,561,404; 7,034,886; 7,508,455; 7,602,446; 7,834,886. This product is protected by the following Canadian Patents: 2039277; 1237518; 1127289. Other patents pending.

Notice

The material in this manual is furnished for informational use only. It is subject to change without notice and should not be construed as commitment by Ross Video Limited. Ross Video Limited assumes no responsibility or liability for errors or inaccuracies that may appear in this manual.

Trademarks

Important Regulatory and Safety Notices to Service Personnel

Before using this product and any associated equipment, read all the Important Safety Instructions listed below so as to avoid personal injury and to prevent product damage.

Symbol Meanings

Protective Earth — *This symbol identifies a Protective Earth (PE) terminal, which is provided for connection of the supply system's protective earth (green or green/yellow) conductor.*

This symbol on the equipment refers you to important operating and maintenance (servicing) instructions within the Product Manual Documentation. Failure to heed this information may present a major risk of damage or injury to persons or equipment.

Warning — *The symbol with the word "**Warning**" within the equipment manual indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.*

Caution — *The symbol with the word "**Caution**" within the equipment manual indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.*

Warning Hazardous Voltages — *This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product enclosure that may be of sufficient magnitude to constitute a risk of shock to persons.*

ESD Susceptibility — *This symbol is used to alert the user that an electrical or electronic device or assembly is susceptible to damage from an ESD event.*

Important Safety Instructions

Read these instructions and heed all warnings.

Warning The safe operation of this product requires that a protective earth connection be provided. A grounding conductor in the equipment's supply cord provides this protective earth. To reduce the risk of electrical shock to the operator and service personnel, this ground conductor must be connected to an earthed ground.

Use only power cords specified for this product and certified for the country of use. Refer to the Product Power Cord Requirement Section that follows.

Do not defeat safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is prong is provided for your safety. If the provided plug does not fit in to your outlet, consult an electrician for replacement of the obsolete outlet.

Protect the power cord from being walked on or pinching particularly at plugs, convenience receptacles, and point where they exit from the apparatus.

Warning Indoor Use: "WARNING – TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE"

Do not block any ventilation openings. Install in accordance with manufacturer's instructions.

Only use attachments/accessories specified by the manufacturer.

Warning Refer all servicing to qualified personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug damage, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Caution To reduce the risk of fire, replacement fuses must be the same type and rating.

Warning This product contains safety critical parts, which if incorrectly replaced may present a risk of fire or electrical shock. Components contained within the product's power supplies and power supply area, are not intended to be customer serviced and should be returned to the factory for repair

Product Power Cord Requirements

Warning **North American Line Voltages 100 - 120 Volt**

This product is supplied with certified 10A/125V SVT type supply cords.

Conductors are color coded white (neutral), black (line) and green or green/yellow (ground).

Operation of this equipment at line voltages exceeding 130V requires that alternative supply cords with appropriate voltage and current ratings be used.

Warning **International Line Voltages 200 - 240 Volt**

This product has been designed for use with certified IEC 320- C13 10A/250V - H03 VV-F3G 1.00mm2 type line cord.

International product orders are supplied with a certified 10A/250V line cords, utilizing a molded 3-pin IEC 320-C13 type connector at one end and stripped conductors on the other. One line cord is provided. Conductors are CEE color coded; blue (neutral), brown (line), and green/yellow (ground).

Installation by a qualified Electrician, of an appropriately approved A/C wall plug certified for the country of use, is required.

Alternatively, other IEC 320 C-13 type power cords may be used, provided that they meet the necessary safety certification requirements for the country in which they are to be used. Refer to the correctly specified line cord above.

EMC Notices

US FCC Part 15

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. These 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.

Notice Changes or modifications to this equipment not expressly approved by Ross Video Ltd. could void the user's authority to operate this equipment.

CANADA

This Class "A" digital apparatus complies with Canadian **ICES-003**.

Cet appareil numerique de la classe "A" est conforme a la norme **NMB-003** du Canada.

EUROPE

This equipment is in compliance with the essential requirements and other relevant provisions of **CE Directive 93/68/EEC**.

INTERNATIONAL

This equipment has been tested to **CISPR 22:1997** along with amendments **A1:2000** and **A2:2002** and found to comply with the limits for a Class A Digital device.

⚠ **Notice** This is a Class A product. In domestic environments, this product may cause radio interference, in which case the user may have to take adequate measures.

CE/C-tick approval

The equipment meets the requirements of the Australian Communications and Media Authority (Limits & Methods Of Measurement Of Radio Interference Characteristics Of Information Technology Equipment (EN55022/CISPR 22)).

Warranty and Repair Policy

The product is backed by a comprehensive one-year warranty on all components.

⚠ **Notice** — *Changes or modifications to this equipment not expressly approved by Ross Video Limited could void the user's authority to operate this equipment.*

If an item becomes defective within the warranty period Ross will repair or replace the defective item, as determined solely by Ross.

Warranty repairs will be conducted at Ross, with all shipping FOB Ross dock. If repairs are conducted at the customer site, reasonable out-of-pocket charges will apply. At the discretion of Ross, and on a temporary loan basis, plug in circuit boards or other replacement parts may be supplied free of charge while defective items undergo repair. Return packing, shipping, and special handling costs are the responsibility of the customer.

This warranty is void if products are subjected to misuse, neglect, accident, improper installation or application, or unauthorized modification.

In no event shall Ross Video Limited be liable for direct, indirect, special, incidental, or consequential damages (including loss of profit). Implied warranties, including that of merchantability and fitness for a particular purpose, are expressly limited to the duration of this warranty.

This warranty is TRANSFERABLE to subsequent owners, subject to Ross' notification of change of ownership.

Extended Warranty

For customers that require a longer warranty period, Ross offers an extended warranty plan to extend the standard warranty period by one year increments. For more information, contact your regional sales manager.

Environmental Information

The equipment that you purchased required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment.

To avoid the potential release of those substances into the environment and to diminish the need for the extraction of natural resources, Ross Video encourages you to use the appropriate take-back systems. These systems will reuse or recycle most of the materials from your end-of-life equipment in an environmentally friendly and health conscious manner.

The crossed-out wheeled bin symbol invites you to use these systems.
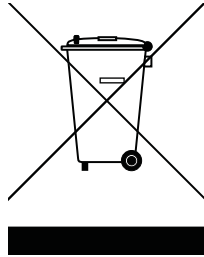
If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration.

You can also contact Ross Video for more information on the environmental performances of our products.

Company Address

Ross Video Limited
8 John Street
Iroquois, Ontario
Canada, K0E 1K0

Ross Video Incorporated
P.O. Box 880
Ogdensburg, New York
USA 13669-0880

Ross Video Australia
Unit 3, 49 London Drive
Bayswater VIC 3153
Australia

General Business Office: (+1) 613 • 652 • 4886

Fax: (+1) 613 • 652 • 4425

Technical Support: (+1) 613 • 652 • 4886

After Hours Emergency: (+1) 613 • 349 • 0006

E-mail for Technical Support: techsupport@rossvideo.com

E-mail for General Information: solutions@rossvideo.com

Website: http://www.rossvideo.com

Contents

Introduction

Thank you for selecting Ross Video's NK-JBX Geneos Control Panel Interface (J-Box). This user guide will help you to install, configure and operate the NK-JBX.

Overview of this Guide

The following chapters are included:

- Overview describes the components and features of the NK-JBX.

- Installation provides basic installation instructions for the modules, including all jumper settings.

- Configuration and Operation provide comprehensive information on all operating modes and features, as well as operation basics and functionality.

- Appendix provides general or additional information for the NK-JBX that may be beneficial for users to familiarize themselves with prior to use of the product(s).

Overview

The NK-JBX

The NK-JBX (Junction Box) is an expansion module giving users the ability to integrate existing Geneos control panels into an NK Series system. The NK-JBX connects directly to the T-Bus and may connect up to 252 panels. Each panel can then be easily configured from the NK-IPS Device Properties page (via a web browser) or configured from the Phoenix Control Surface, Ross Video's multi-platform graphical user interface.

Each NK-JBX can control a subset of 255 inputs, 255 outputs and 8 levels, from the total of 65,535 inputs, 65,535 outputs and 32 levels available within the NK v2 protocol.
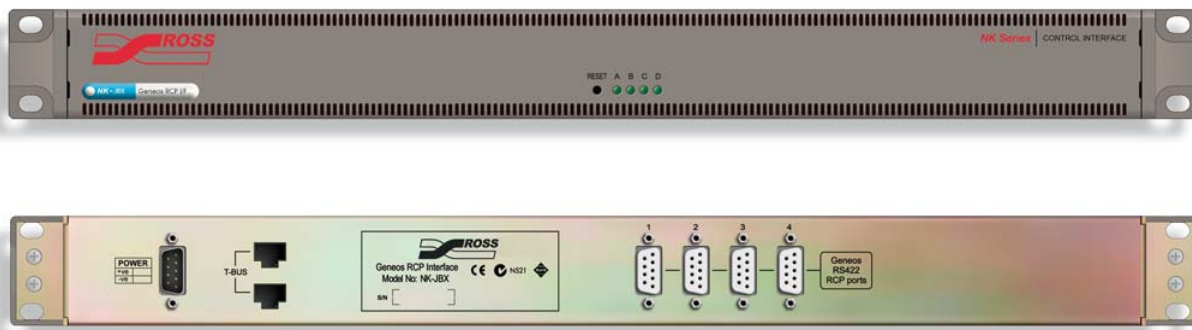
Figure 2.1 *Front and Rear Panels of the NK-JBX*

Supported Control Panels

The NK-JBX supports the following Geneos control panels:

- RCU-251 / RCP-251 - Compact Controller
- RCU-252 / RCP-SN - SpinKnob Controller
- RCU-348 / RCP-K - Kameleon Controller
- SK-x / RCP-SKx - SK Series Kameleon Controllers 1-4

★ It is recommended to have the lastest firmware updates installed on panels to ensure full operation of the NK-JBX and the control panels within an NK Series routing system. For firmware details, refer to "**Appendix A: Control Panel Firmware**" on page 6–1.

Supported Features

The NK-JBX supports all Geneos control panel features with the exception of salvos. For users who require salvos in day to day operation, it is recommended to purchase a native NK Series Control Panel with Macro support.

The supported features include:

- Crosspoint switching
- Breakaways
- Machine Control
- Local Protects
- Global Protects
- Panel Setup via a web browser or the Phoenix Control System (includes panel setup, mnemonics, virtual labels, actual labels, label access, and breakaways)
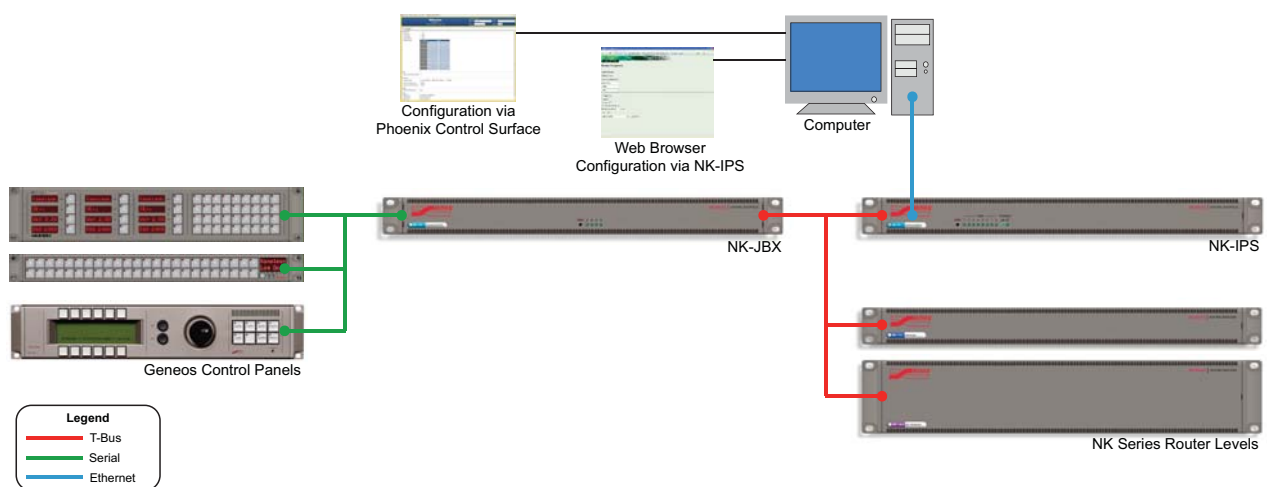
Figure 2.2 *NK-JBX Connection*

Specifications

Table 2.1 Connections

Connections	Specifications
RCP Connections	4 x DB-9 (female)
RCP Communication	RS-422
T-Bus	2 x RJ-45b (female, looping)

Table 2.2 General

General	Specifications
Configuration	• Web browser via NK-IPS • Phoenix Control Surface
Dimensions	1 RU x 25mm deep
Power Supply	+ 15V DC

Installation

Unpacking and Pre-Installation

After unpacking the NK-JBX, please thoroughly inspect the device for any signs of damage that may have occurred during transportation. In the event of such damage, please notify a Ross Video representative immediately.

The NK-JBX should be installed in an adequately ventilated rack frame, ideally in an appropriate environment for audio visual equipment.

⚠️ *Relative humidity should be no more than 70% (non-condensing) and temperatures should not exceed 30°C or 86°F.*

Connecting the NK-JBX

To connect the NK-JBX to an NK-IPS:

1. Connect a straight through Ethernet cable to one of the RJ-45 port on the rear of the NK-JBX.

2. Connect the other end of the Ethernet cable to a spare RJ-45 port on the rear of the NK-IPS.

   If there are no spare RJ-45 ports on the NK-IPS, connect the cable to another T-Bus compatible device that has a spare RJ-45 on the rear.

To connect the NK-JBX to Geneos control panels:

1. Connect the parallel control panel cable to a DB-9 connector on the rear of the NK-JBX.

2. Connect the other end of the cable to a DB-9 connector on the rear of the control panel.

   To connect a second control panel, the DB-9 looping connector on the rear of the first control panel may be used.

★ A maximum of 253 Geneos control panels may be connected to one NK-JBX. If required, multiple NK-JBXs may be connected to the NK-IPS.

Once the NK-JBX has been connected to both the NK-IPS and the control panels for control of NK Series routers, it may be powered up and configured via a web browser or the Phoenix Control Surface. To configure the NK-JBX, refer to "**Configuring the NK-JBX**" on page 4–1.
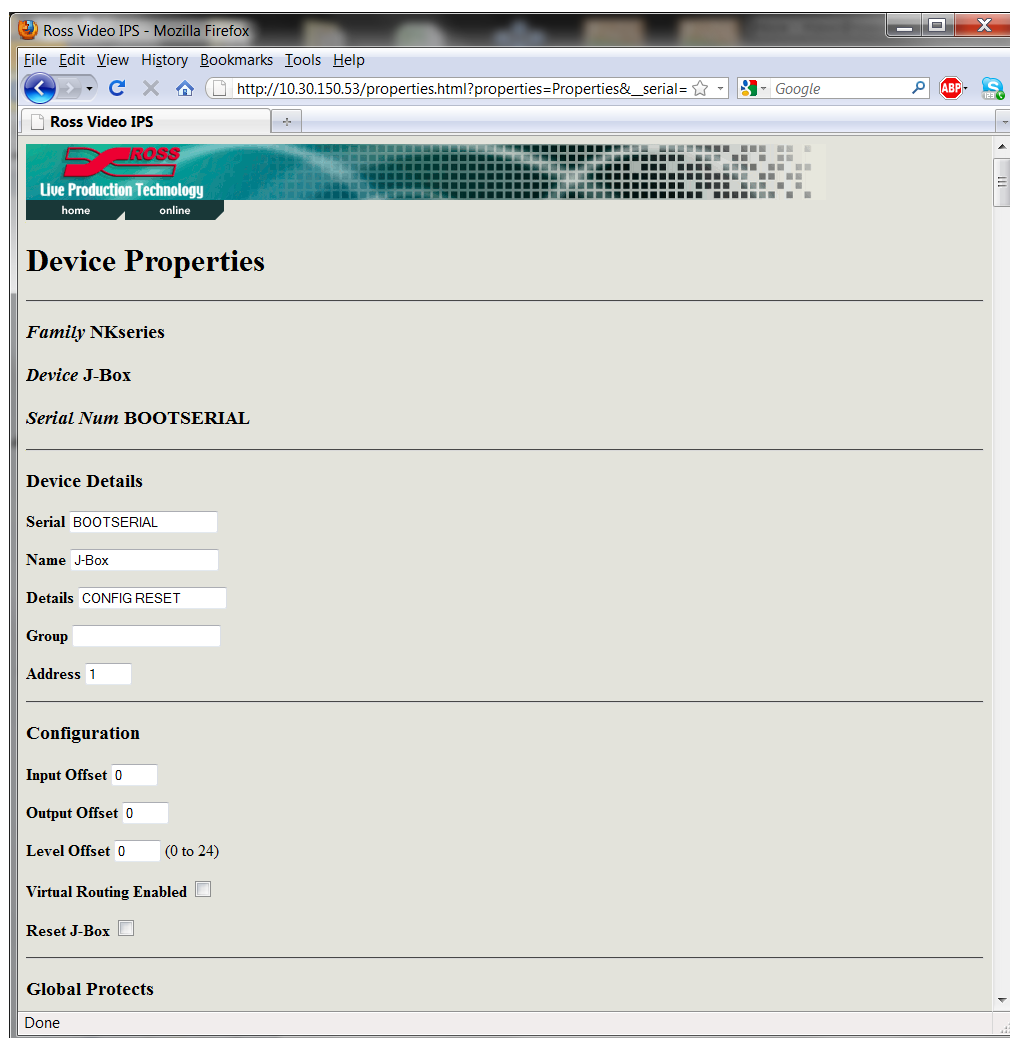
Configuration

Configuring the NK-JBX

Overview

The NK-JBX and connected Geneos control panels require configuration before usage. Configuration images and screenshots herein are taken from the web browser configuration, via an NK-IPS. Configuration options for the Phoenix Control Surface are detailed here, although layout and presentation does differ significantly. For information on configuring devices via the Phoenix Control Surface, refer to the *Phoenix Control Surface User Guide*.

Configuration Options

The NK-JBX **Device Properties** page, accessible through the NK-IPS, allows users to configure interface and usability options for the NK-JBX and connected Geneos control panels, as well as having the unique ability to assign names and brief descriptions for the devices themselves.

Figure 4.1 *NK-JBX Device Properties Page*

Device Details Fields

Family

Family **NKseries**

The **Family** name is set in the factory before shipping and displays the family that the device belongs to. This parameter is not user configurable.

Device

Device **J-Box**

The **Device** name is set in the factory before shipping and displays the name assigned to the device. This parameter is not user configurable.

Serial Number

Serial Num **25924**

The **Serial Number** is set in the factory before shipping and is unique to each device. This parameter is not user configurable.

Name

Name J-Box

The **Name** field can be assigned by the user to uniquely name a device.

This field has a maximum of 16 characters and is used for description and identification only.

Details

Details

The **Details** field can be assigned by the user to give a device specific details. For example, a physical location or a brief description of its use.

This field has a maximum of 16 characters and is used for description and identification only.

Group

Group

The **Group** number can be assigned by the user to organize devices into groups. For example, users can assign separate Group numbers for devices in different physical areas.

This field has a maximum of 10 characters and is used for description and identification only.

Address

Address 100

The **Address** is used within the overall control system to identify devices. Each device must be given a unique Address to avoid hardware and communication conflicts.

The valid value range for assigning an individual device Address is 2-255.

Configuration Fields

Input Offset

Input Offset 0

Output Offset

Output Offset [0]

Level Offset

Level Offset [0] (0 to 24)

Virtual Routing Enabled

Virtual Routing Enabled ☐

Protects

Global Protects

Global Protects	
Output	Panel Address
1	255
2	255
254	255
255	255

Protects Held

Protects Held			
Output	Protected	Contr Addr	Global
1	☐	255	☐
2	☐	255	☐
254	☐	255	☐
255	☐	255	☐

Submit and Upgrade Fields

Submit Settings

Submit Settings

The **Submit Settings** button will upload the settings to the device.

If users wish to cancel or ignore the settings they have made, click the **Online** tab to return to the Online Devices page, or click the **Refresh** button of your browser to revert to the original settings displayed.

Upgrade Firmware

Upgrade Firmware [   ] Browse... Submit File

The **Upgrade Firmware** button is used to upload to the device the latest firmware, contained in a binary file. Upgrading firmware allows new features, enhancements, and improvements of the NK-JBX to be installed.

Configuring Geneos Control Panels

Overview

The Geneos control panels require configuration before they can operate with an NK Series routing system. Configuration images and screenshots herein are taken from the web browser configuration, via an NK-IPS. Configuration options for the Phoenix Control Surface are detailed here, although layout and presentation does

differ significantly. For information on configuring devices via the Phoenix Control Surface, refer to the ***Phoenix Control Surface User Guide***.

For description and implementation of specific control panel configuration options; as well as a general understanding of mnemonics, virtual and actual labels; users may need to refer to the necessary user guides.

Configuration Options

Geneos control panel **Device Properties** pages, accessible through the NK-IPS, allows users to configure interface and usability options for Geneos Control Panels, as well as having the unique ability to assign names and brief descriptions for the devices, when connected to the NK-JBX.

Control panels are listed individually on the **Online Devices** page. Each control panel's **Serial Number** field displays the panel address (PA), followed by the last five numbers of the NK-JBX that the panel is connected to.

Figure 4.2 *NK-IPS Online Devices Page*

Operation

Overview

Once the NK-JBX is connected to an NK-IPS and one or more Geneos control panels, and configured via a web browser or the Phoenix Control Surface, it may be used within an NK Series routing system.

NK-JBX operation relies solely on Genoes control panels and, once configured, requires no futher user input for optimum functionality.

★ If any major configuration changes are made to the NK Series routing system (router, level or offset changes or reconfiguration) it is recommended that the NK-JBX be reset.

Startup Process

When the NK-JBX is powered up, it sends out a query string to find which Geneos control panels are connected to it. The NK-JBX will then send a reset string to clear any global or local protects previously stored in the control panels, and then send the current online crosspoint status to the routers.

Appendix A: Control Panel Firmware

Overview

It is strongly recommended to have the latest versions of control panel firmware installed before interfacing panels with the NK-JBX. The table below shows the latest firmware available for supported control panels. Please note that firmware may have to be installed via the Geneos Routing Software (v3.1) before connecting panels to the NK-JBX.

Table 6.1 Control Panel Firmware

Product Code	Control Panel	Current Firmware Version	Minimum Recommended Firmware	Firmware Type
RCU-251 / RCP-251	Compact Controller	2.05	2.04	EEPROM
RCU-252 / RCP-SN	SpinKnob Controller	2.07	2.06	EEPROM
RCU-348 / RCP-K	Kameleon Controller	2.13	2.12	EEPROM
SK-x / RCP-SKx	SK Series Kameleon	2.20	2.20	EEPROM