

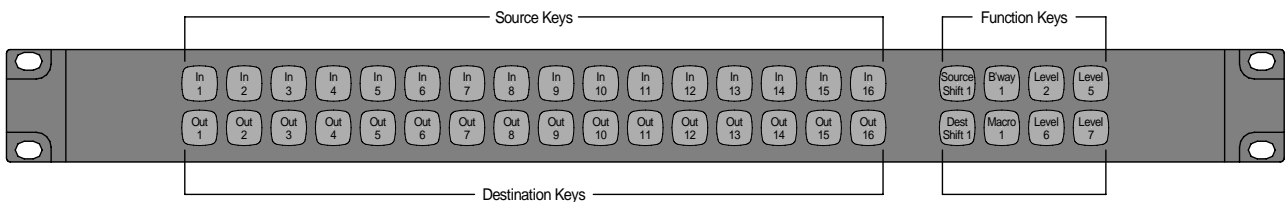
Configuring an RCP-NK1 Control Panel Without an NK-IPS Network Bridge

Introduction

The versatility of the RCP-NK1 control panel makes it a popular choice whether controlling simple systems with one or two routers or more sophisticated multi-site systems. The RCP-NK1 has features which make it the ideal choice in cost sensitive installations, in particular, the ability to locally mount the panel to the front of a 1RU router, the ease of connection with phantom power provided by the T-Bus, and as we shall explore in this application note, the ability to configure the panel without the need for an NK-IPS Network Bridge by using the panel’s Function Key Program Mode.

The RCP-NK1 Factory Default Configuration

The RCP-NK1 is a fully programmable control panel – any key can be assigned any function. “Out of the box”, the RCP-NK1 control panel is configured as an X-Y panel with 16 Source and 16 Destination keys on the left and a group of 8 function keys on the right. The function keys include four level keys assigned to Levels 2, 5, 6 and 7, a tied Breakaway which selects Levels 1 – 8 for a tied switch, a Macro key, and Source and Destination Shift keys.



Factory Default RCP-NK1 Configuration

The default RCP-NK1 key assignments have the following functionality:

- Destinations 1-16** – selects the current output (bottom row)
- Sources 1-16** – selects the desired input (top row)
- Destination Shift 1** – when illuminated selects destinations 17-32
- Source Shift 1** – when illuminated selects sources 17-32
- Breakaway** – selects Levels 1-8 to be switched simultaneously
- Level** – selects a router level (or router partition) to be included in a switch
- Macro** – plays back key press events recorded earlier

While this default layout works well for many applications, users may wish to change the key assignments to more suit their needs. For example, users may wish to control routers on levels other than what is available in the default configuration, or they may wish to create specific breakaways, add extra macro keys, or add functions such as Take, Chop, Protect, or Panel Lock.

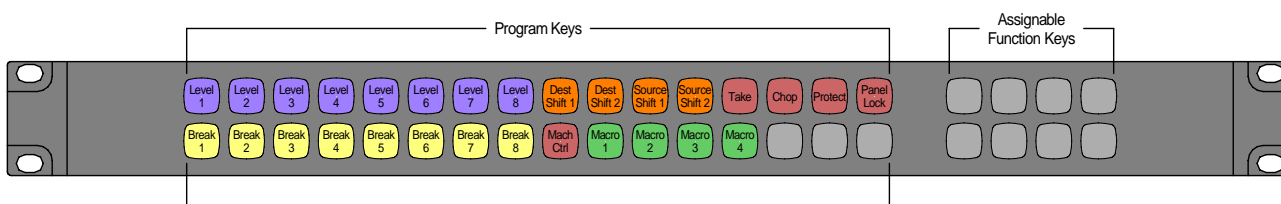
Consider programming a system without a computer or an NK-IPS Network Bridge. Existing default router levels need to be taken into consideration. Factory default level assignments for NK Series routers are shown in the table below:

Routers	Signal Format	Level							
		1	2	3	4	5	6	7	8
NK-MD	SD/HD Video	✓							
NK-S	SDI Video		✓						
NK-D	AES/EBU Audio			✓					
	Not Used				✓				
NK-V	Analogue Video					✓			
NK-A	Analogue Audio (Left)						✓		
	Analogue Audio (Right)							✓	
NK-M	Machine Control								✓

Table of Default Router Level Assignments

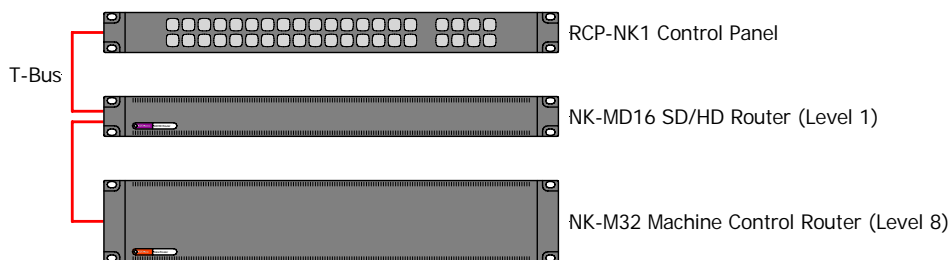
The RCP-NK1 Function Key Program Mode

The RCP-NK1 Function Key Program Mode allows users to program the 8 right hand side keys function keys directly from the panel. This allows users without an NK-IPS Network Bridge to configure the RCP-NK1 panel to configure levels or breakaways, as well as accessing functions not available on the default panel layout. The function keys on the right are programmed after entering Function Key Program Mode using the two left hand rows of 16 keys (usually assigned as source and destination keys) as temporary program keys.



Program Key Layout for RCP-NK1 in Function Key Program Mode

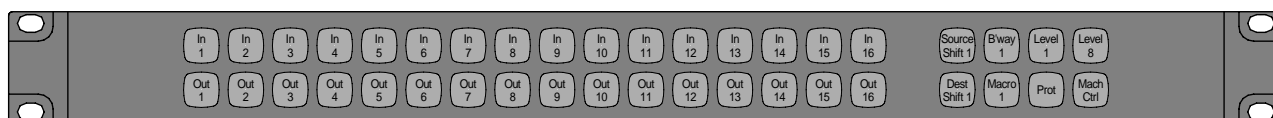
Consider the following NK Series routing system with NK-MD16 and NK-M32 routers controlled by an RCP-NK1 control panel:



Simple NK Series System

The changes which are to be made from the default panel configuration are as follows:

- Change the Level 2 key to Level 1 (for selecting the NK-MD16 router)
- Change the Level 5 key to Level 8 (for selecting the NK-M32 router)
- Change the Level 7 key to Mach Ctrl (for enabling bidirectional Machine Control switching)
- Change the Level 6 key to Protect (for protecting outputs and locking the panel)
- Leave the tied breakaway but remove all unused levels defined in the breakaway to prevent a breakaway warning.



New Panel Layout for Simple NK Series System after Programming

Programming Steps

The steps required to program the new panel layout are as follows:

1. Enter Function Key Program Mode

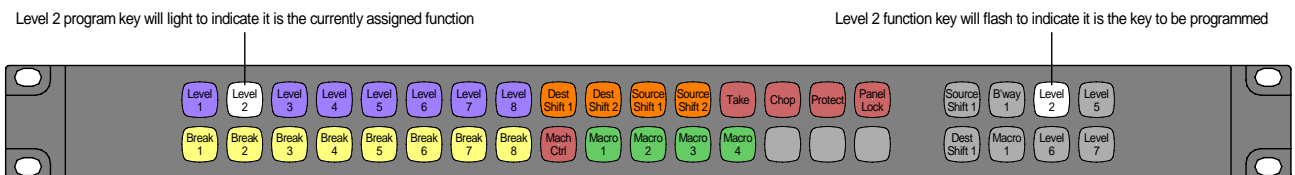
Power up the device while holding down one of the function keys on the right hand side for 3 seconds. All function keys will flash once, and the selected function key will flash quickly to show that the panel is in Program Mode.

Note: Because the RCP-NK1 panel is phantom powered via the T-bus, remove then re-insert the T-Bus cable from the panel to cycle the power.

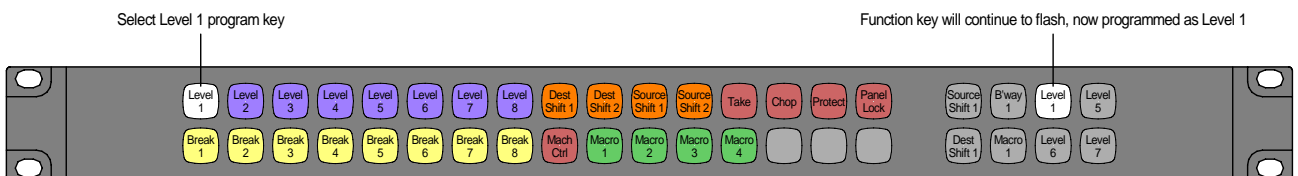
2. Program the Function Keys

a) Change the Level 2 key to Level 1

Select the function key on the right currently assigned as Level 2:



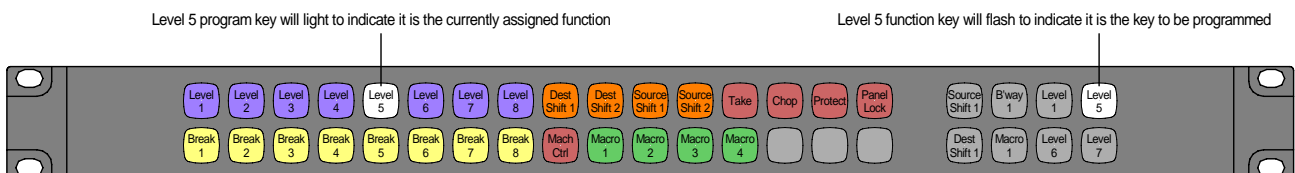
Select the Level 1 program key on the left to assign the function key on the right as Level 1:



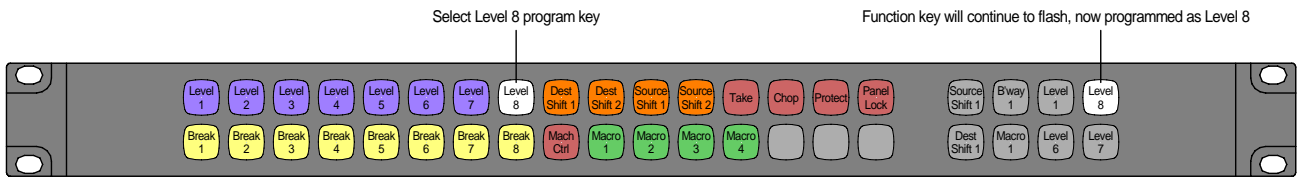
Select the Level 1 program key to save the new function key assignment.

b) Change the Level 5 key to Level 8

Select the function key on the right currently assigned as Level 5:



Select the Level 8 program key on the left to assign the function key on the right as Level 8:



c) Change the Level 7 key to Mach Ctrl

Select the function key on the right currently assigned as Level 7.

Select the Mach Ctrl program key on the left to assign the function key on the right as a Mach Ctrl On/Off key.

d) Change the Level 6 key to Protect

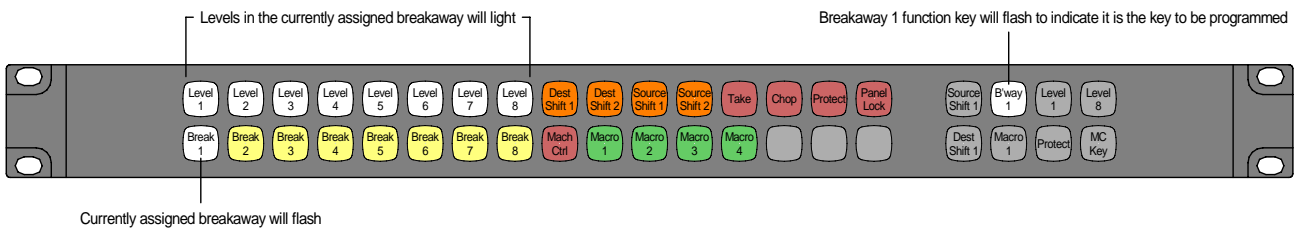
Select the function key on the right currently assigned as Level 6.

Select the Protect program key on the left to assign the function key on the right as a Protect key.

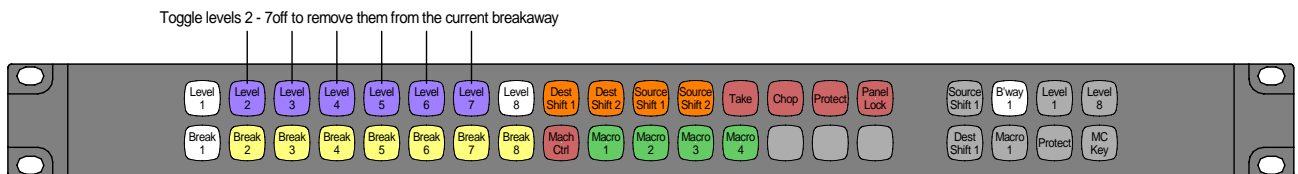
e) Remove all unused levels defined in the tied breakaway

Select the function key on the right currently assigned as Breakaway 1:

The default breakaway on the RCP-NK1 is a tied breakaway with Levels 1 – 8 selected.



Select the Level 8 program key on the left to assign the function key on the right as Level 8:



The B'way 1 key on this panel could be considered to be redundant since it performs the same function as selecting both the Level 1 and Level 8 keys simultaneously. This means we could re-configure the Breakaway key to perform another more useful function. Suppose for example we wanted to add a new router to the system. The breakaway key could be reprogrammed as a level key. In this case, we would need to clear the breakaway (by selecting one of the unused program keys on the bottom row), or assign it to another function first, before assigning the Level.

3. Exit Program Mode

To exit the Function Key Program Mode, cycle power to the control panel by removing the T-Bus cable, waiting several seconds and re-inserting the T-Bus cable.

Suggested Uses of Function Key Program Mode

- Reprogram unused function keys
- Add Shift keys to access more router crosspoints
- Add Take, Chop, Protect or Panel Lock functions
- Add extra Macro keys
- Add Breakaway keys and change the levels in a breakaway
- Add Level keys – ideal for adding router levels
- Add a Mach Ctrl key for enabling bi-directional switching when using a Machine Control router level.