



SmartSwitch Development Kits

Switch Selection Guide



	Switch	Compact Switch	Display
Size (LxWxH)	23.13 x 20.59 x 23 mm	19 x 18 x 23 mm	17.8 x 17.2 x 9.9 mm
LCD 36x24	<ul style="list-style-type: none"> ▪ Monochrome Graphic Display ▪ Single/bi Color or RGB Backlighting ▪ 50,000 hrs Life ▪ 1.8mm of Switch Travel ▪ 1,000,000 Actuation Switch Rating 	<ul style="list-style-type: none"> ▪ Monochrome Graphic Display ▪ Single/bi Color or RGB Backlighting ▪ 50,000 hrs Life ▪ 1.8mm of Switch Travel ▪ 1,000,000 Actuation Switch Rating 	<ul style="list-style-type: none"> ▪ Monochrome Graphic Display ▪ Single/bi Color or RGB Backlighting ▪ 50,000 hrs Life
LCD 64x32	<ul style="list-style-type: none"> ▪ Monochrome Graphic Display ▪ Single/bi Color or RGB Backlighting ▪ 50,000 hrs Life ▪ 4.5mm of Switch Travel ▪ 3,000,000 Actuation Switch Rating 	<ul style="list-style-type: none"> ▪ Monochrome Graphic Display ▪ Single/bi Color or RGB Backlighting ▪ 50,000 hrs Life ▪ 1.8mm of Switch Travel ▪ 1,000,000 Actuation Switch Rating 	<ul style="list-style-type: none"> ▪ Monochrome Graphic Display ▪ Single/bi Color or RGB Backlighting ▪ 50,000 hrs Life
OLED	<ul style="list-style-type: none"> ▪ 65K Color Graphic Display ▪ 64 x 48 Pixels (3 colors each) ▪ 15,000 hrs Life ▪ 4.5mm of Switch Travel ▪ 3,000,000 Actuation Switch Rating 	Not Available	<ul style="list-style-type: none"> ▪ 65K Color Graphic Display ▪ 52 x 36 Pixels (3 colors each) ▪ 15,000 hrs Life

Switch Selection Guide



	LCD 36 x 24	LCD 64 x 32	OLED
Switch Actuation	SPST Momentary ON	SPST Momentary ON	SPST Momentary ON
Backlighting Control	Discrete	SPI	Not Applicable
Number of Backlights	Limited by Customer Design	64	Not Applicable
Display Control	Serial	SPI	SPI
Maximum Frequency	6MHz	8MHz	6.6MHz
Logic Voltage	5V	5V	2.4 to 3.3V
Logic Current	0.5mA max	10mA	0.2mA max
Display Voltage	7.4V typical	5V	15 to 17 V
Display Current	2mA max	Included in Logic Current	7mA max
Backlight Current (off to full brightness)	0 to 40mA	0 to 40mA	Not Applicable

SmartSwitch Development Kit Content



1. Controller.
2. Logic board with switches.
3. Handling instructions.
4. RS232 cable.
5. Power cable.

- Battery not included
- Software and manual can be downloaded from our web site



The Dev Kit can be powered by either a wall supply or a 9V size battery. Battery must be installed with the correct orientation or the Dev Kit could be damaged.

Engineering Documentation available on web page:
<http://www.nkksmartswitch.com/support/docs.asp>

SmartSwitch Development Kits



IS-DEV KIT-5
LCD 36 x 24 RGB



IS-DEV KIT-5C
LCD 36 x 24 RGB Compact



IS-DEV KIT-5D
LCD 36 x 24 RGB Display

SmartSwitch Development Kits



IS-DEV KIT-6
LCD 64 x 32 Switch



IS-DEV KIT-6C
LCD 64 x 32 Compact



IS-DEV KIT-6D
LCD 64 x 32 Display



IS-DEV KIT-7
OLED 64 x 48 Switch



IS-DEV KIT-7D
OLED 52 x 36 Display

Logic Boards & Controller for 36 x 24 Dev Kits



LCD 36 x 24 RGB Display



IS-L0251-C-IS01BFRGB

IS-L0251-C-IS01**

**Any Bicolor or Monocolor SmartDisplay

Mode Select Switch
Standard res selected



High res
Standard res

Connector



Pin Plug

1

NKK[®]
SWITCHES
www.nkksmartswitch.com

Controller:
IS-C0203-F-E

LCD 36 x 24 RGB Switch



IS-L0204-C-IS15ABFP4RGB

LCD 36 x 24 Compact



IS-L0271-C-IS15SBFP4RGB

IS-L0271-C-IS15S**

**Any Bicolor or Monocolor SmartSwitch

LCD 36 x 24 Bicolor Switch



IS-L0205-C-IS15A**

**Any Bicolor or Monocolor SmartSwitch

Logic Boards and Controller for 64 x 32 Dev Kits



**LCD 64 x 32
Display**



IS-L02F1-C-IS01DBFRGB

Mode Select Switch
High res selected

Connector



Controller
IS-C0203-F-E

**LCD 64 x 32
Switch**



IS-L02A1-C-IS15DBFP4RGB

**LCD 64 x 32
Compact**



IS-L02H2-C-IS15DSBFP4RGB

Logic Boards and Controller for OLED Dev Kits



Controller:
IS-CL01-F-E



OLED 64 x 48 Switch

IS-L02L1-C-ISC15ANP4



OLED 52 x 36 Display

IS-L02P1-C-ISC01P

General Controller Features



The **IS-C0203-F-E** controls two LCD 64x32 switches/ displays or two LCD 36x24 switches/ displays. The firmware can be customized based on customer requirements. Below are current features:

- Controls two LCD 64x32 switches/ displays or two LCD 36x24 switches/ displays
- Serial communication via RS232 (57.6K, 1 start bit, 8 bit , 1 stop bit)
- Optional audio feedback while switch is pressed.
- Program responses to switch-actions events and timer-expire events.
- User programmable for images, attributes and set-ups.
- Set the type of activity reports from the controller to host.
- LED Brightness settings.
- Flash memory for 255 pictures and attributes.
- Reports switch activity and timer expiration via serial port.
- Stand alone operation or real time control by host.

General Controller Features



The **IS-CL01-F-E** controls two OLED 64x48 SmartSwitches or two OLED 52x36 SmartDisplays. The firmware can be customized based on customer requirements. Below are current features:

- Controls two OLED 64x48 SmartSwitches or two OLED 52x36 SmartDisplays
- Serial communication via RS232 (57.6K, 1 start bit, 8 bit , 1 stop bit)
- On board microSD Flash that can hold up to 65,536 images
- Optional audio feedback while switch is pressed.
- Program responses to switch-actions events and timer-expire events.
- User programmable for images, attributes and set-ups.
- Command the controller to display images in real time.
- Direct communication from host to the OLED modules.
- Set the type of activity reports from the controller to host.
- Brightness settings to extend OLED life.
- Reports switch activity and timer expiration via serial port.
- Stand alone operation or real time control by host.

IS-C0203-F-E Controller:

- IS-L02A1-C-IS15DBFP4RGB LCD 64 x 32 RGB Switch
- IS-L02F1-C-IS01DBFRGB LCD 64 x 32 RGB Display
- IS-L02H2-C-IS15DSBFP4RGB LCD 64 x 32 Compact

- IS-L0204-C-IS15ABFP4RGB LCD 36 x 24 RGB Switch
- IS-L0251-C-IS01BFRGB LCD 36 x 24 RGB Display
- IS-L0271-C-IS15SBFP4RGB LCD 36 x 24 RGB Compact

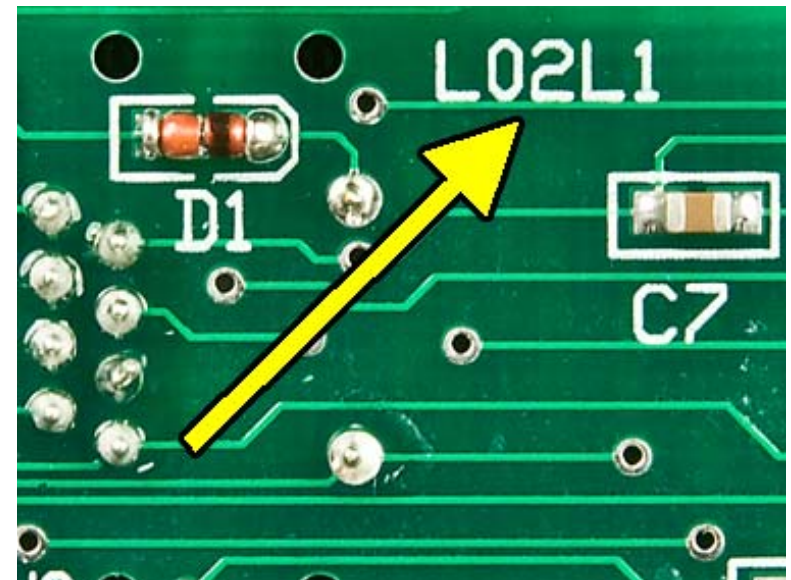
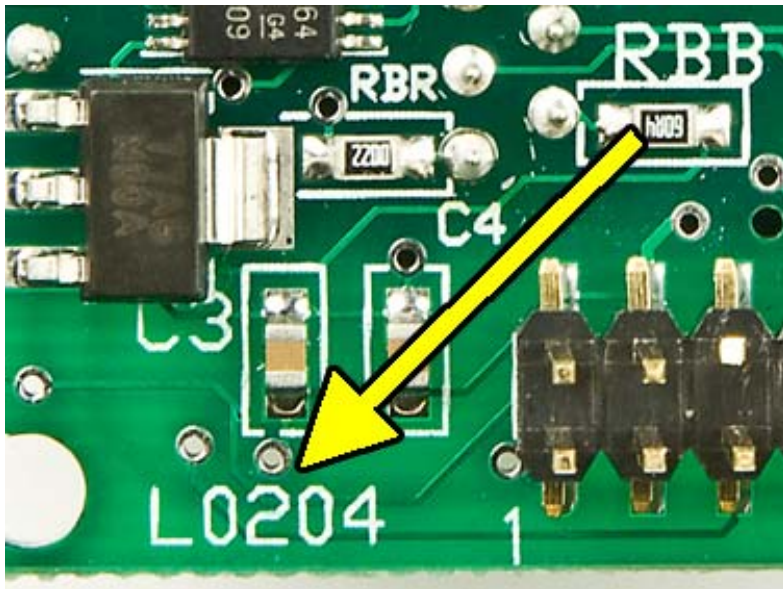
- IS-L0205-C-(Bicolor or Monocolor) LCD 36 x 24 Switch

IS-CL01-F-E Controller:

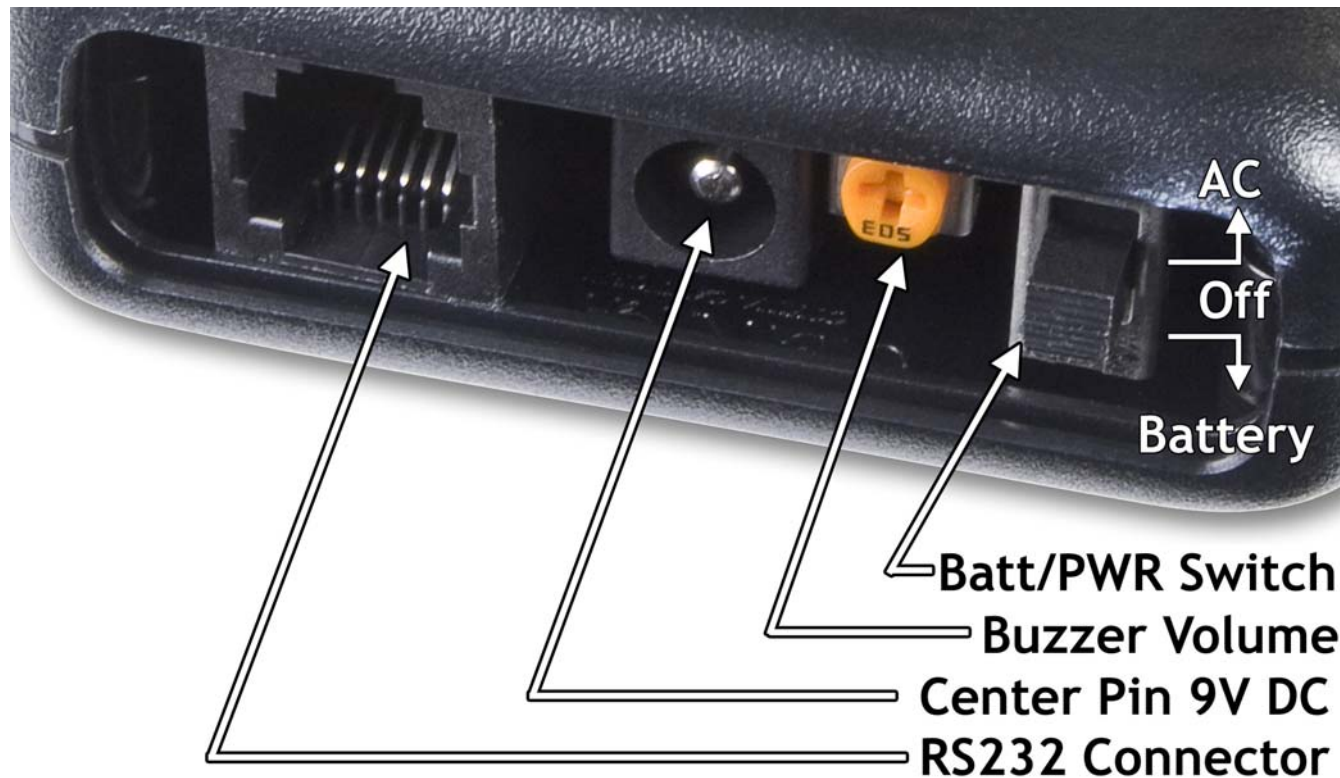
- IS-L02L1-C-ISC15ANP4 OLED 64 x 48 Switch
- IS-L02P1-C-ISC01P OLED 52 x 36 Display

Logic Boards

Logic boards can be identified by the number on the secondary side as shown in the Pictures below. The Standard Bicolor IS-L0205-C logic board can handle any of the Standard single and bicolor family.



Connections for the Controller



Engineering Documentation available on web page:
<http://www.nkksmartswitch.com/support/docs.asp>

Manuals:

- Manual for IS-C0203 Controller (Dev Kits 5, 5C, 5D, 6, 6C, 6D)
- Manual for IS-CL01 OLED Controller (Dev Kit 7, 7D)

Application Notes:

- Application Notes for Standard LCD SmartSwitch (LCD 36 x 24)
- Application Notes for High Resolution LCD SmartSwitch (LCD 64 x 32)
- Application Notes for OLED SmartSwitch

Software:

- Universal Communicator User Manual
- Video Preparation for Universal Communicator
- Image Preparation for Universal Communicator

Others:

- IS-CHPMP User Manual

Universal Communicator



The Universal Communicator is a free software program provided by NKK Switches for the purpose of evaluating and experimenting with the SmartSwitch and SmartDisplay Dev Kits.

General Features:

- Communicates with controllers used in Dev Kits.
- Can program attributes for controlling switch actions.
- Can download images from 24bit RGB or monochromatic Bitmap formats to the controllers.
- Single image or batch image download.
- Most commonly used commands available as buttons.
- Three serial speeds (9600,19200,57600).
- Several settings for experimentation.
- Can send manual commands.
- Software, manual, and supporting documentation can be downloaded from NKK Switches' web site <http://www.nkksmartswitch.com/>

