

# **OPERATION MANUAL**

## **STATIC POWER SWITCHING UNIT**

**MODEL: SPX-31**

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## DESCRIPTION

The ASHE SPX-31 Static Power Transfer Switch is a microcontroller based thyristorized power switching unit. The instrument is used as a watchdog for the mains power line feeders in industries so as to ensure a smooth and uninterrupted power availability to critical equipment.

The Static Power Transfer Switch accepts two single phase power feeders as input lines. Depending upon the preset settings, the SPX-31 switches one of the two input feeders to the output, i.e., it provides a selection of one primary feeder out of two input power feeders. Further it monitors the voltage and current continuously and displays the values on the front digital display. The instrument has a membrane switchpad on the front panel to set all parameters. An active LED mimic gives a direct indication of the status of the input and output signals.

The ASHE SPX-31 has automatic recovery features. After a power shut down, when power supply is restored, it automatically returns precedence to the primary power feeder. The Power Switching unit is slim and aesthetically designed and consumes minimal panel space. It is available in 19 inch rack execution in 1U height

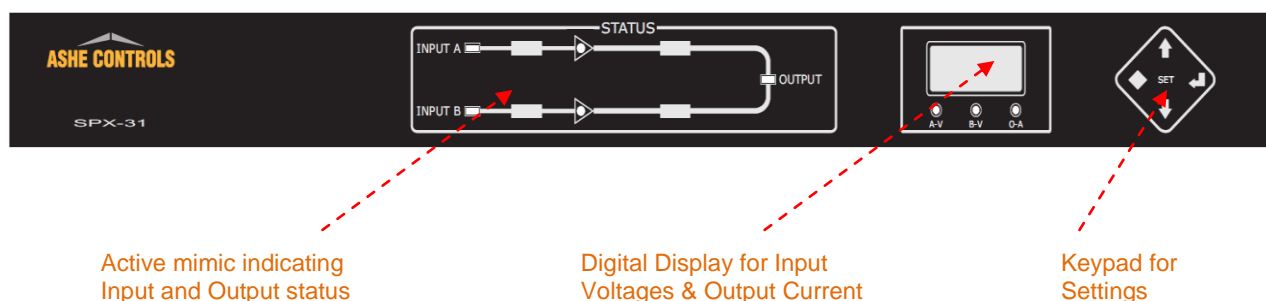
All ASHE range of products carry a five year performance warranty.

## INSTALLATION

The instrument is available in a standard 19" Rack design with very low height of 1U so as to occupy minimal panel space [See *TECHNICAL SPECIFICATIONS*]. All interconnections to the instrument should be made with strong multi-strand wire of the order of 4 sq.mm. The ends of the wires should be properly ferruled and suitable lugs must be used for effective termination. The Relay contacts are potential free and any desired voltage may be used in conjunction with the same.

## OPERATION & SETTINGS

The front panel of the Static Power Switching unit SPX-31 is as shown below:



**Digital Display :** Three-digit seven-segment digital display indicates the AC Voltage of INPUT-A, AC Voltage of INPUT-B and the Output load Current.

### LED indications :





1. **A-V** : Indicates the reading on display is of INPUT-A
2. **B-V** : Indicates the reading on display is of INPUT-B
3. **O-I** : Indicates the reading on display is of load current

### Status LEDs :

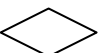
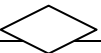
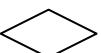
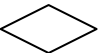
Active LED mimic for status indications of input source and output current

## CONTROL KEYS

The instrument has four keys on the front panel, functions of which are described below

	The PROGRAM key is the central co-ordinating key to access the settings of the instrument. Pressing this Key allows the operator to sequentially view, change and save the control parameters.
	The INC or Increment key allows the operator to select the numeral in the digit being set on an increasing scale. The digit will sequentially display 0, 1, 2....9 on each pressing of the INC key. The incrementing speed increases if the key is kept pressed.
	The DEC or Decrement key allows the operator to select the numeral in the digit being set on a decreasing scale. The digit will sequentially display 9, 8, 7....1 on each pressing of the DEC key. The decrementing speed increases if the key is kept pressed.
	Not in use in this model.

## CONTROL SETTINGS

KEY Pressed	DIGITAL DISPLAY	FUNCTION
(POWER ON)	Scanned Process Values	The instrument sequentially scans and displays the AC Voltage of Input-A, AC Voltage of Input-B and the output load Current on the seven-segment digital displays.
<b>PROG</b> 	<b>SrC</b>	<b>SrC</b> stands for Primary Source. The user can select INPUT-A or INPUT-B as the primary source (for precedence). By default, INPUT-A is accorded the Primary Source.
<b>PROG</b> 	<b>Bnd</b>	<b>Bnd</b> stands for the Input Voltage Band. This level defines the permitted voltage variation band to be recognized as a valid Input Voltage. The default value is 30 V, i.e., for a 230 VAC supply, the voltage limits will be 90 to 270V.
<b>PROG</b> 	<b>r-t</b>	<b>r-t</b> stands for Recovery Time. The default value is 10 seconds. e.g., If Primary Source is INPUT-A, and there is a failure in Input A, the power source will be seamlessly switched to INPUT-B. As soon as INPUT-A is restored, the SPX-31 checks the voltage level for 10 seconds, and if it is found healthy, then the Input source is switched back to INPUT-A.
<b>PROG</b> 	Scanned Process Values	The instrument comes out of Control Setting mode and displays the process values on digital display. Also the source & status of the Input and Output voltages are indicated on the active LED mimic

### Relay Function:

Relay will ON when any one input (Input A or Input B) gets failed.

If both inputs are OK then Relay remains OFF.

## TERMINAL DIAGRAM

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>	<b>13</b>
L1	N1	E1	L2	N2	E2		L3	N3	E3	NO	C	NC
Input Voltage A			Input Voltage B			x	Output Voltage			Relay c/o contacts [potential free]		

## TERMINAL DETAILS

TERMINAL NO.	NOTATION	DETAILS
1	L1	INPUT VOLTAGE – A
2	N1	
3	E1	
4	L2	INPUT VOLTAGE – B
5	N2	
6	E2	
7	X	NO CONN
8	L3	OUTPUT VOLTAGE
9	N3	
10	E3	
11	NO	RELAY CONTACTS
12	C	
13	NC	

## TECHNICAL SPECIFICATIONS

Model	:	SPX-31.
Type	:	Microcontroller based thyristorized power switching unit.
Input Signal	:	Two nos. AC voltage inputs (single-phase)
Output signal	:	One AC voltage output (depending on input status).
Voltage Input-A	:	230 VAC, 50 Hz
Voltage Input-B	:	230 VAC, 50 Hz
Switching current	:	Upto 31 Ampere.
Control Setting parameters	:	Primary Voltage source selection, Range for voltage watch-dog, Input Recovery time.
Relay output	:	Single Relay c/o contacts (potential free).
Contact Rating	:	10 Ampere @ 230 VAC.
Indications	:	3-digit seven-segment LED display for Input / Output Voltage and Current indications and Menu selection  Active LED mimic for status indications of input sources and output voltage.
Settings	:	By four-key membrane switchpad on front panel.
Switching devices	:	High-speed Opto-Triacs (Thyristors).
Memory	:	Non-Volatile (on EEPROM).
Enclosure	:	Standard 19" Rack compatible enclosure (1U).
M.O.C.	:	Extruded Aluminum fabricated housing.
Dimensions	:	44.45H x 483W x 200D mm.
Weight	:	Approximately 2 kgs
Ambient Temp.	:	0 to 50°C.

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