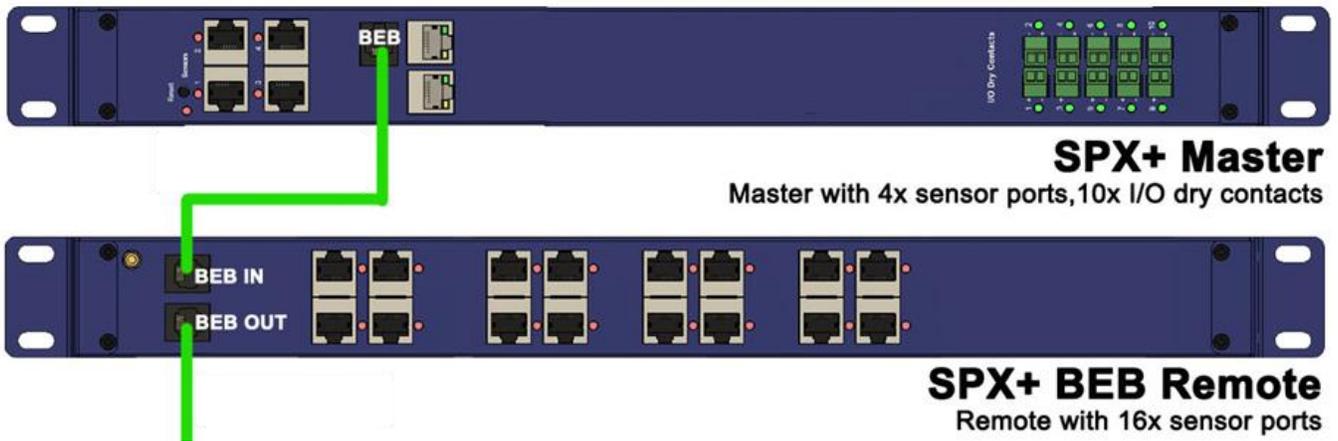




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# SPX+ BEB Expansion Manual





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## Introduction

The BEB or (Basic Expansion Bus) units provide a simple yet cost effective way to increase the amount of sensors and dry contacts using multiple BEB (slave units) to the single “Master” SPX+ remote unit and its single IP address.

These provide a lower cost solution for adding sensors or dry contacts and works on a short distance only. Maximum total length from SPX+ Master to the end BEB slave is 18 meters. Therefore, we recommend this for building up 2U, 3U type setups within the same server cabinet.

The SPX+ is shipped with a dual EXP/Modbus and BEB port module. The EXP port is like our securityProbe Expansion, it’s a long distance extension option, and therefore a more expensive version of the expansion as you can extend up to 300 meters on each SP2+ and SPX+ unit. This would be the E-Opto16 and E-Sensor8 that are compatible with the securityProbe and DCU series units. The EXP/Modbus port also supports the RS-485 Modbus (see SP+ Modbus Manual).

**Note:** Your unit may have been shipped with the dual EXP/Modbus Ethernet or the EXP/Modbus & separate BEB modules if it was shipped prior to us changing to the dual EXP/Modbus BEB module.

**Important Note:** please note that the BEB slave units are only supported on the SPX+ base units and NOT supported on the SP2+, the securityProbe or DCU / CCU units.

## Example of Adding & Maximum Sensors

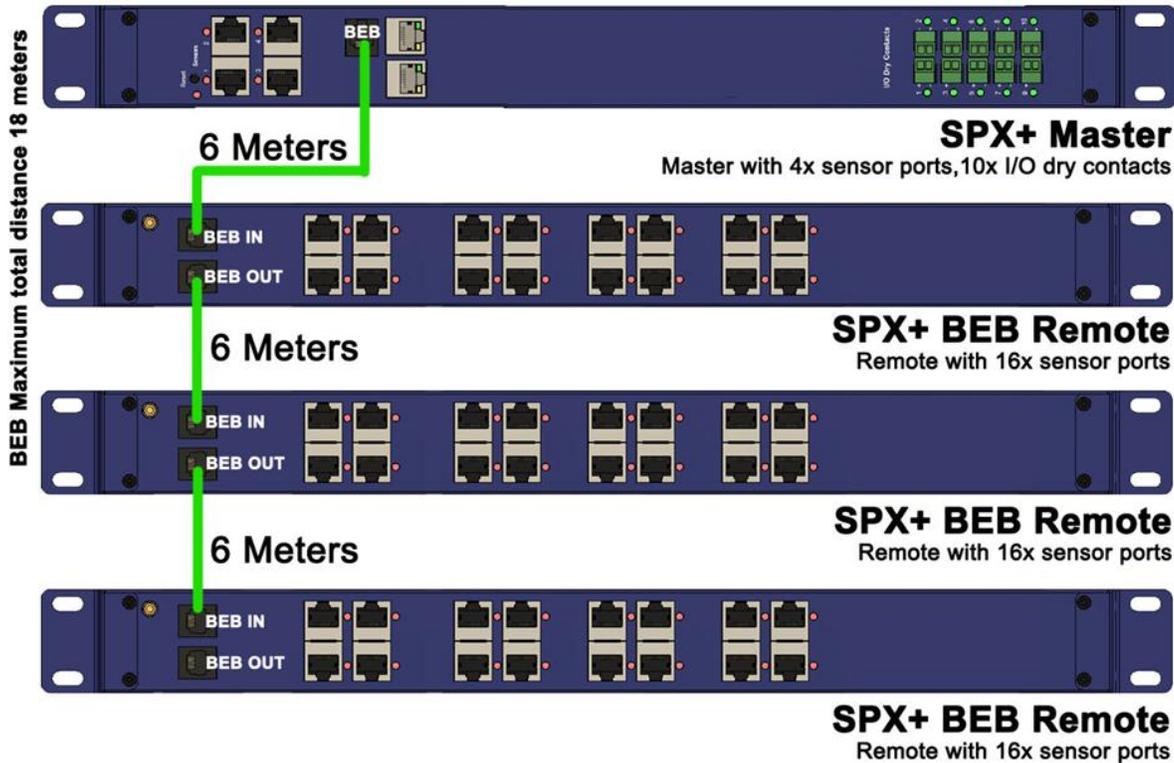
You can configure an SPX+ with a total of 16 sensor ports, and then you can add the BEB expansion units and have 16 sensor ports each. You are limited to a maximum of 150 sensors on an SPX+, that is 150 sensor points, not physical sensors.

For an example the power meter or PMS is already counted as several sensors (voltage, current, power factor, KVA etc) each of these data points is a “sensor” in in the SPX+ database. Another example would be the dual temperature humidity sensors which would count as two sensors, or two sensor points.

Also note when the VPN feature is enabled on the SPX+ the maximum sensors is 42 instead of 150. For more detailed information on the VPN and other licensed features please check the SPX+ product manuals on our website.

## Installation

The BEB units are easy to install, and ready to mount with in the 19" racks, or cabinets.



As shown in the diagram above, you can mount each BEB in the 1U configuration and daisy chain them using the BEB connection ports. The BEB units must be connected one at a time, not all at once. When disconnecting and then re-connecting the BEB to a different SPX+ base unit you will need to reset the BEB using the reset button on the BEB unit.

The LED on the BEB units will show the communication / activity between the SPX+ and and the BEB unit. The BEB's are powered by the external 5VDC PSU that is included in the shipment.

RJ12 pin	Functionality
1	5V
2	RESET
3	DATA
4	5V
5	GND
6	CLOCK

The BEB connectors are straight RJ-12 to RJ-12 and the wiring diagram is shown in the chart above. Cables are included however normal CAT5 or CAT6 can be used for these RJ-12 connections.

The BEB will always be an RJ-12, this allows to differentiate these from the EXP connection with the RJ-45. You can always use CAT3 cable Instead of CAT5 cable if this will be easier for your installation.

### **Maximum Cable Length**

The Maximum total distance between the SPX+ and the last BEB in the string of BEB slave units is 18 meters. So, for the example shown above with 1 x SPX+ and 3 x BEB slave units the maximum run length of each cable is 6 meters.

### **Additional notes on BEB configurations**

There is no maximum number of BEB slaves, in theory, the limitation is only on the distance, 18 meters from the master to the last slave device. The main limitation really is in the 150 sensor limit on the SPX+ itself. You will most likely reach this long before you max out the number of BEB units.

There is no maximum number of IO (dry contacts) modules, the only limitation would be if you wanted to fit them in a 1U configuration. You can only get 40 IO ports on an SPX+ BEB. If you include more it will be longer than 1U.

We do not recommend extending BEB units to other server cabinets. As explained before, the BEB's are designed principally for expanding within the same cabinet only. For example, if you wanted to build an SPX+ that is similar to our SP8-X60, it would be a 1U device. So you can build an SPX+ and an SPX+ BEB and connect them together with a short cable from 1U to the next. The main thing we recommend considering is the total distance from the SPX+ to the last BEB unit, this should not be more than 10 meters to ensure good communications and power is received on all BEB units.

### **Support for the AKCP Swing Handle Cabinet Locks**

There are no limitations on the RFID Swing Handle Locks as the SPX+ units can handle 16, so you can connect them to BEB units as well as the main unit. If you connect many to a BEB unit you may need to add in an additional power supply. All BEB units are powered from the SPX+ Master, but there is a power jack for when you are connecting many power hungry sensors including the SHL's.

### **Online Configuration Tool**

We have a very fully featured configuration tool on our website where you can build your custom configured units. Please see the link below on this.  
[www.akcp.com/configuratorTool/index.html?p=spxplus](http://www.akcp.com/configuratorTool/index.html?p=spxplus)

## SPX+ web UI configuration

With the 5VDC power supply connected first and the BEB unit(s) connected to the SPX+ BEB port, you would first open the SPX+ web UI and log in as Admin.

The screenshot shows the AKCP SPX+ web interface. At the top, there is a blue header with the AKCP logo and 'SPX+'. Below the header, there are fields for 'System Name' and 'System Location', and a checkbox for 'EVENT LOG'. The main content area is titled 'Sensor Information' and contains a table with the following columns: Unit, Name, Value, and Status. The table lists several modules under the 'SPX+' category:

Unit	Name	Value	Status
Module 0 - 4x Sensor Ports			Connected
Module 1 - 4x Sensor Ports			Connected
Module 2 - 10x Dry Contacts IO			Connected
Internal Board	Buzzer		Off
Virtual Sensors			Connected

The screen shot above shows the SPX+ web UI before the BEB unit(s) are connected.

This screenshot shows the same AKCP SPX+ web interface after BEB units have been connected. The table now includes an additional section for 'Remote Module 1', which is highlighted with a red arrow. The status for all modules remains 'Connected'.

Unit	Name	Value	Status
Module 0 - 4x Sensor Ports			Connected
Module 1 - 4x Sensor Ports			Connected
Module 2 - 10x Dry Contacts IO			Connected
Internal Board	Buzzer		Off
Virtual Sensors			Connected
<b>Remote Module 1</b>			
Module 1.1 - 4x Sensor Ports			Connected
Module 1.2 - 20x Dry Contacts IO			Connected

After connecting the BEB unit, this now appears as the “Remote Module” as you can see in the screen shot above. Now the sensors and notifications and dry contacts can be configured normally.

Please refer to the **SPX+ Manuals** for detailed configuration of the sensors (the available options match with the Web UI options). All AKCP type sensors are supported on the BEB slave units, including the AKCP Swing Handle Locks.



Please contact [support@akcp.com](mailto:support@akcp.com) if you have any further technical questions or problems.

**Thanks for Choosing AKCP!**