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SPX+ BEB Expansion Manual

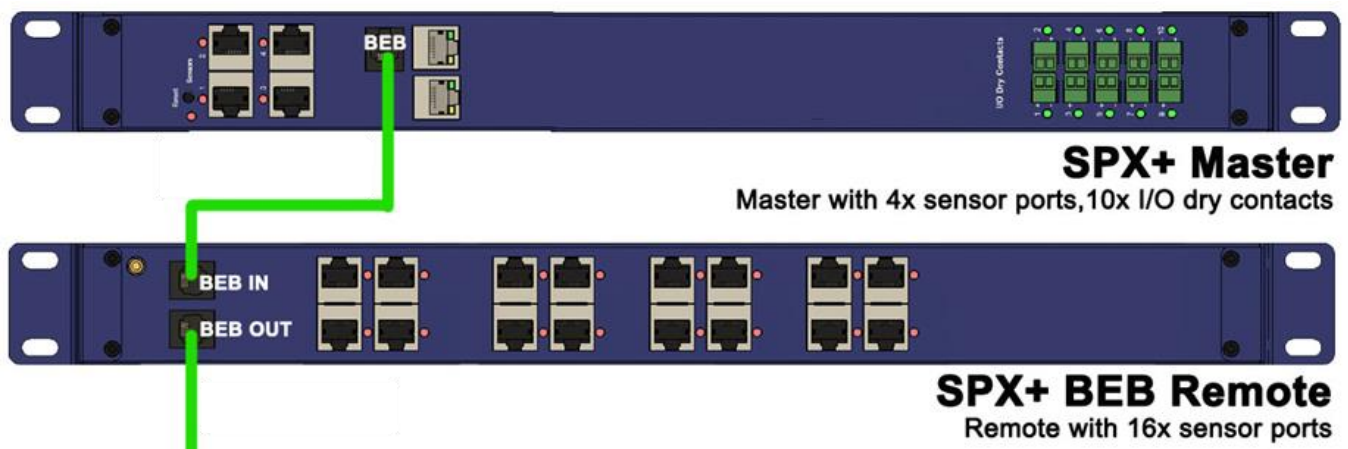




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Introduction

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 200 sensors on an SPX+ F7 type unit and 600 on the latest H7 type units, that is 200 or 600 sensor points, not physical sensors.

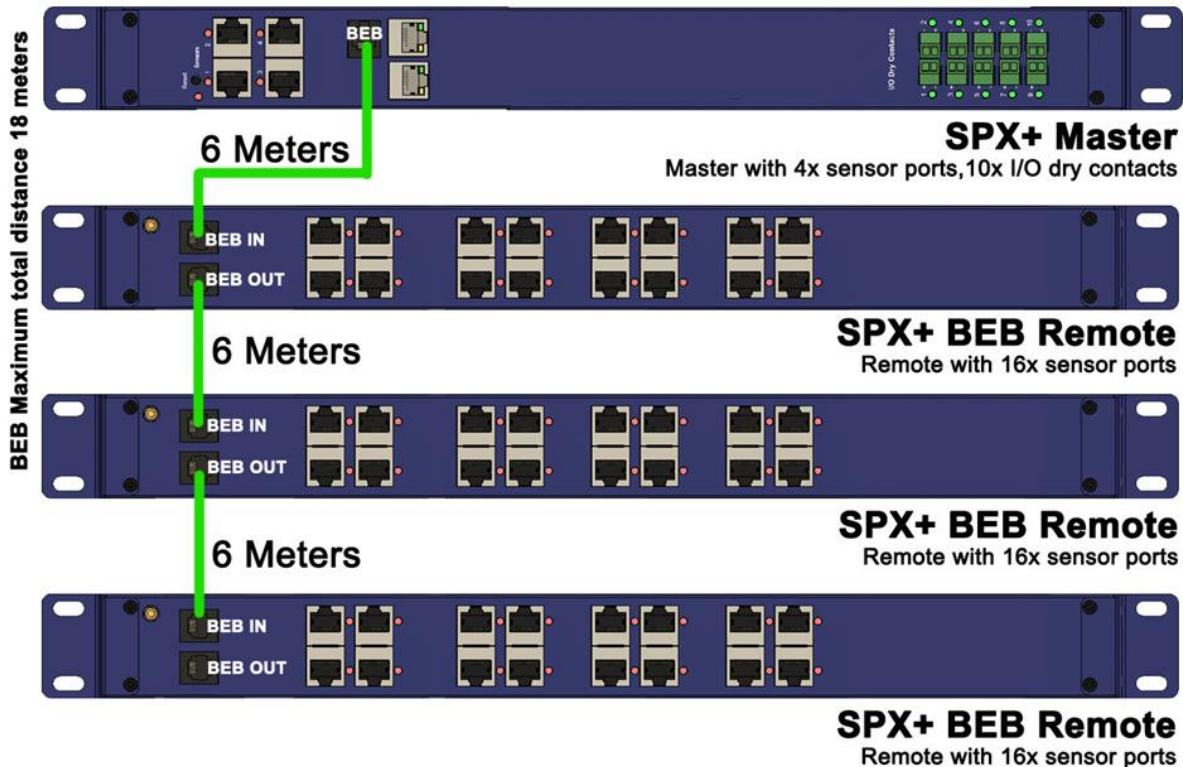
For an example the power meter or PMS is already counted as several sensors (voltage, current, power factor, KVA etc) each of these data points is a “sensor” in in the SPX+ database. Another example would be the dual temperature humidity sensors which would count as two sensors, or two sensor points.

Also note when the VPN feature is enabled on the SPX+ the maximum sensors is: 600 enabled sensors on H7 units, 200 enabled sensors on F7 units, including Expansion Units and virtual sensors (reduced to 36 on F4 units).

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 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 200 sensor limit on the SPX+ itself for the older F7 type units and 600 for the H7 type SP+. 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 2U 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, we recommend this not to be more than 10 meters to ensure good communications and power is received on all BEB units.

Trouble shooting details on the BEB units

If you are having trouble with the BEB units please check the following;

1. Insure that you have connected the external AC power adapter to the BEB units and also test the output of the AC power adapter using a multimeter to ensure proper 5VDC.
2. Insure that the BEB unit was not accidentally disabled in the SP+ units web UI.
3. If you are connecting external sources to the dry contact modules on the BEB, ensure that you have not exceeded the voltage or current in these connections. No more than 5VDC and 20mA on the non-isolated type of dry contact inputs.
4. Ensure you have not exceeded the extension cable run lengths and always use the blue BEB extension cables supplied with the BEB units for testing (no patch panels).
5. Try running the BEB re initialization steps in this online eLearning video;
<https://youtu.be/xJsTGgnT1-Y?si=PKS8i4S1lvNmVPr2>

Support for the AKCP Swing Handle Cabinet Locks

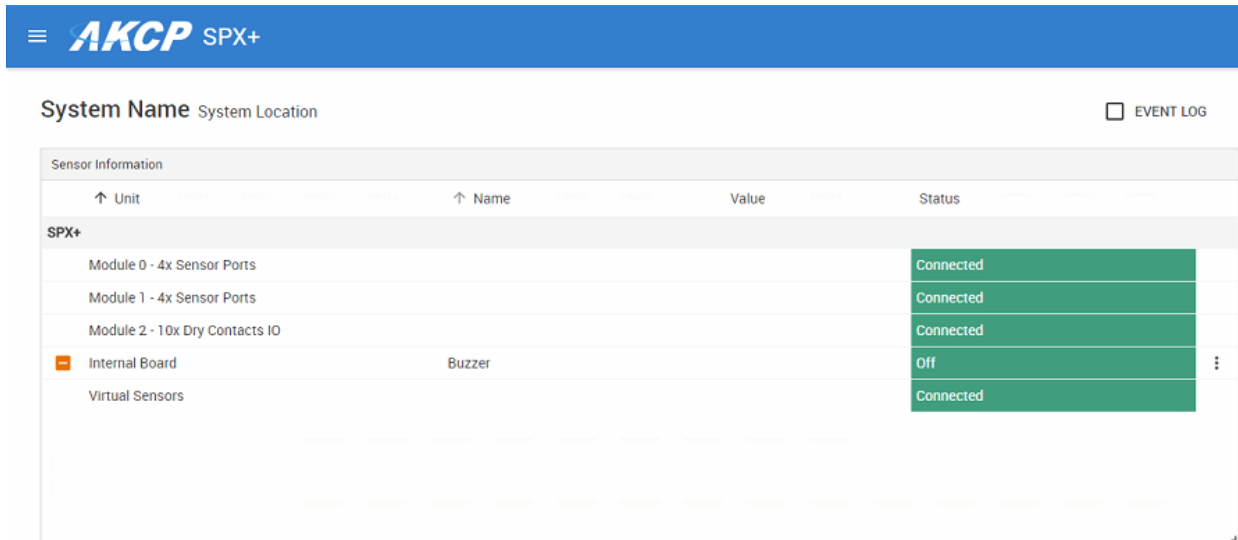
There are no limitations on the RFID Swing Handle Locks as the SPX+ units can handle 16, so you can connect them to BEB units as well as the main unit. If you connect many to a BEB unit you may need to add in an additional power supply. All BEB units are powered from the SPX+ Master, but there is a power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

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 UI. At the top is a blue header with the AKCP logo and 'SPX+'. Below the header, there are tabs for 'System Name', 'System Location', and 'EVENT LOG'. The main content area is titled 'Sensor Information' and contains a table with columns for Unit, Name, Value, and Status. The table lists several modules and their status:

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.


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SPX+

System Name

System Location

☐ EVENT LOG

Sensor Information			
↑ Unit	↑ Name	Value	Status
SPX+			
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			
Remote Module 1			
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 also check out these helpful links on our website for more technical details regarding our products;

<https://www.akcp.com/forum/>

<https://www.akcp.com/knowledge-base/sensorprobe-plus-series-knowledge-base/>

Please contact support@akcp.com if you have any further technical questions or problems.

Thanks for Choosing AKCP!