SensorProbeX+

The World's Best SNMP Environmental Monitoring System

SPX+ is the latest generation of sensorProbe devices. For racks, 1U or 0U tool-less mounting is available. For Industrial applications, DIN rail mounting is an option. SPX+ employs a modular system, allowing you to build up your unit, only paying for the features you need.

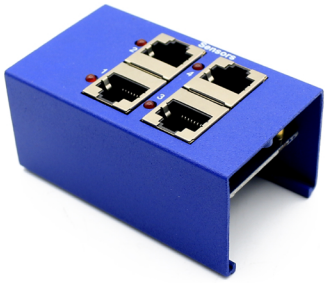
- Expansion (EXP), Modbus and Basic Expansion Bus (BEB) as standard.
- Ethernet connectivity, fully SNMP compliant.
- Optional 3G or 4G Cellular Data Modem and GPS
- Connect a wide range of AKCP Intelligent Sensors.
- Virtual Sensors for monitoring third party devices
- Suitable for Data Center and Industrial applications.
- Build custom units from our selection of optional modules.
- Optional SNMP V3 license
- Optional IPV6

SPX+ Modules

SPX+ units come in several standard configurations, or you can select from the modules below and build up your own custom unit, paying only for the features you need.

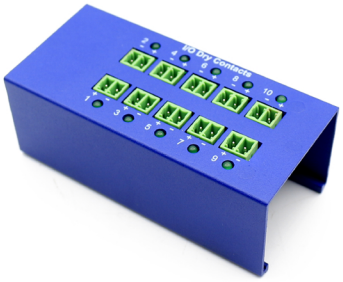
Main Control Unit

The MCU module is the core of the SPX+. A mandatory module, it forms the base configuration of every unit. With 4x intelligent sensor ports you can begin to monitor a wide variety of sensors. An Ethernet port provides network connectivity. An Expansion (EXP) port provides connection of SPX+ EXP units, which can be extended up to 300 meters from the main SPX+. EXP port also doubles as a Modbus RS485 port. A Basic Expansion Bus (BEB) port gives connection to SPX+ BEB units, which can be extended up to 18 meters total length. A buzzer for alerts and alarms is built in to this module.



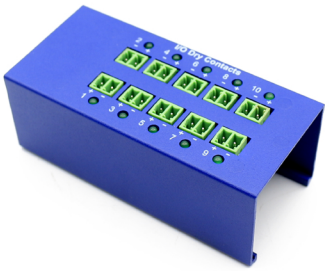
Sensor4

sensor4 modules give additional intelligent sensor ports, allowing you to build your SPX+ to your requirements. Connect a wide range of intelligent sensors and smartRack sensors such as thermal maps and RFID Swing Handle Locks.



Dry10 & Dry20

Dry contact modules can be added in x10 or x20 blocks. The dry contacts can be specified to be I/O, isolated input only (internal 5V), isolated input only (external 5-20V). Dry contacts can be used to monitor a variety of third party devices and alarm panels.

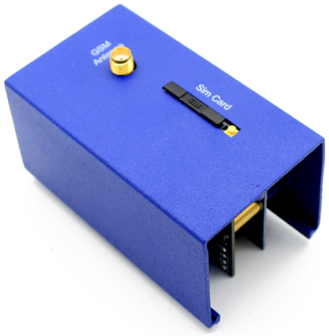


AC Voltage Detection

Monitor 10x or 20x AC Voltage inputs, detect if circuits are energized or not. This module does not give a votlage reading, only the presence or absence of AC Voltage. Voltage range is 5-30ACV @ 44mA.

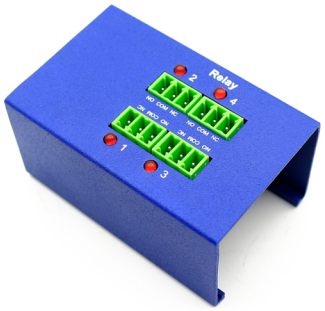
Mini UPS

This module gives up to 1.5 hours of backup battery, or 30 minutes with cellular modem. 4x AA rechargable batteries (batteries not included) provide the power. Make sure that you can always recieve alerts no matter your power condition.



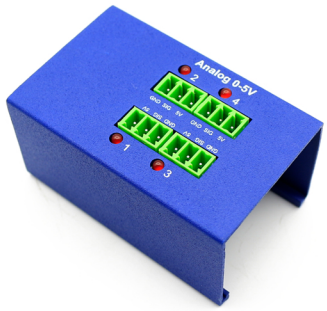
Cellular Data Modem

A 3G or 4G Cellular Data Modem module can be added to your SPX+ to give a primary or backup method of communication Send SMS and e-mail alerts directly from the device through the cell network. Ideal for remote site locations and those with unreliable DSL connection. Add optional GPS antenna for realtime tracking of location.



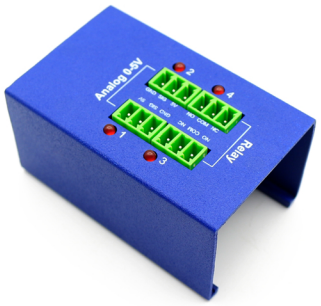
4x Mini Relays

This module includes 4x mini DC relays. Use them to switch on/off low current devices directly, or use them to drive larger relays. Ideal for systems and control, building and industrial automation.



4x Analog to Digital Inputs

This module is ideal for connecting third party analog sensors with a 0-5VDC or 4-20mAmp scale output. Many industrial sensors are available with this scale output, opening up the possibilities of monitoring many different sensors not provided by AKCP.



2x Mini Relay and 2x Analog to Digital Inputs

This module is a combination of the above modules, with 2 relays and 2 0-5VDC or 4-20mAmp Analog sensor inputs.

Ball Valve Controller

If you have DC motors or electronically controlled ball valves which require polarity reversal to turn in the opposite direction, this module is applicable. Ideal for water irrigation or industrial applications which require valve and motor controls.

SPX+ Expansion Architecture

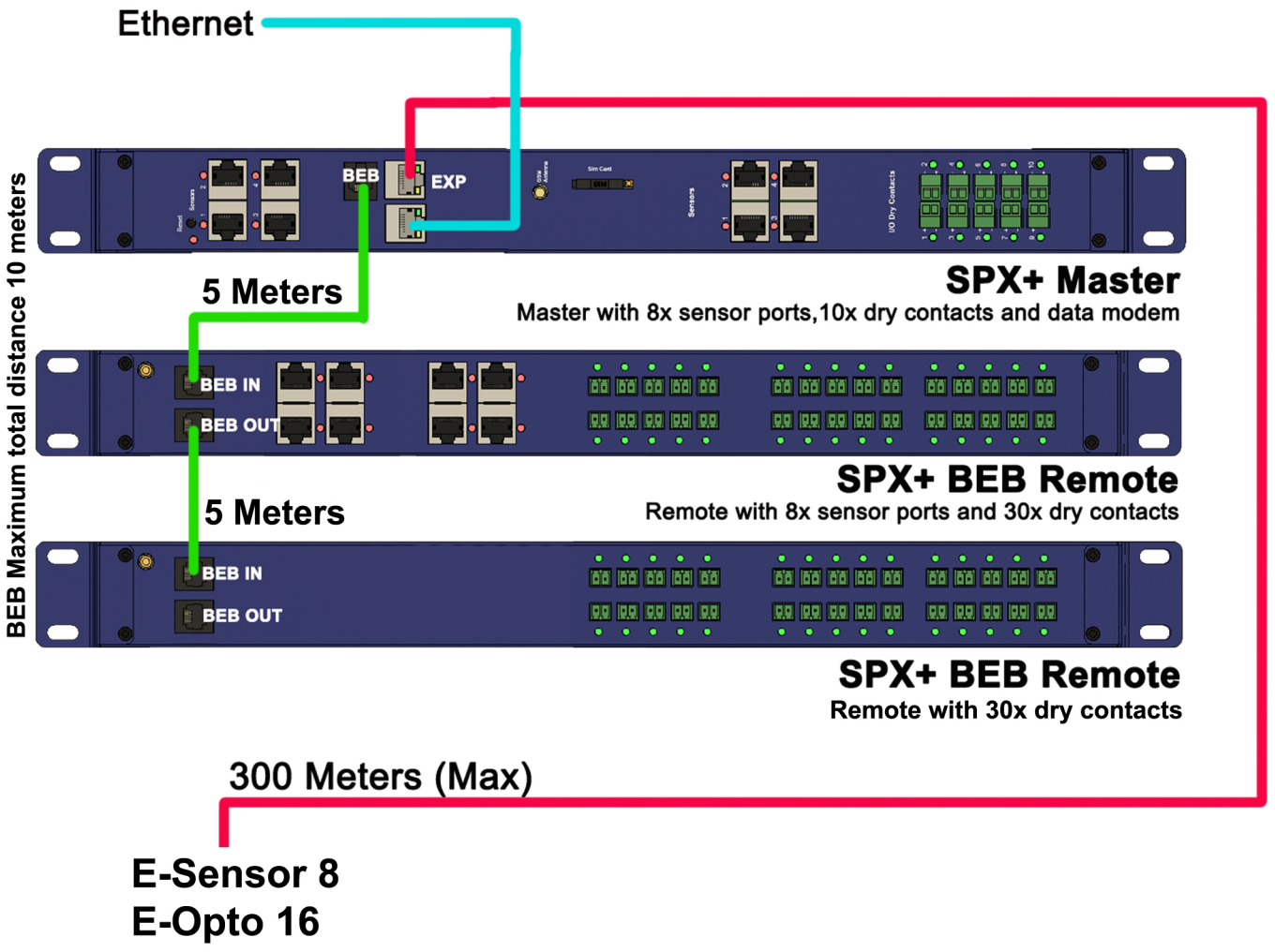
SPX+ comes with two types of expansion technology built in as standard. Expansion (EXP) and Basic Expansion Bus (BEB).

Why use BEB?

BEB is good for short distance expansion, within the same cabinet, or to a neighbouring cabinet. Multiple BEB units can be daisychained, with a maximum distance from the Master to the final Remote unit being 10 meters. SPX+ BEB Expansion Slaves are lower cost solution than EXP, but have this distance limitaiton.

Why use EXP?

EXP works over a much longer distance than BEB, with up to 300 meters between each device. This allows, for example, placement of an SPX+ EXP Remote with dry contact inputs nearby a control panel that is 300 meters away from your SPX+ Master, and you only need to bring a single CAT5 cable from the Remote back to the Master, rather than many twisted pair cables from the contacts.

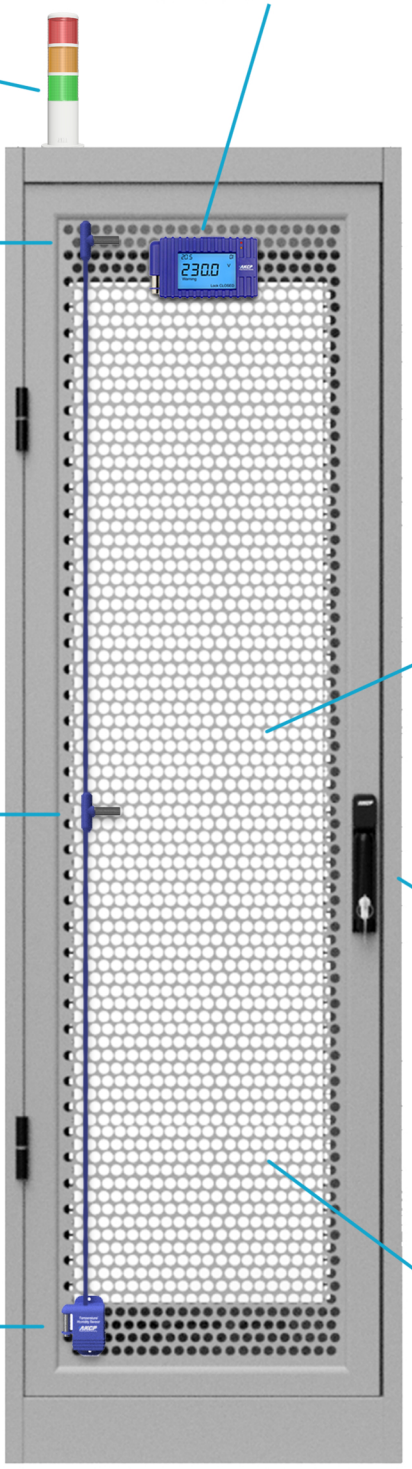


SPX+ in the Datacenter

SPX+ comes in both 1U and 0U versions for mounting in any standard computer cabinet. Utilize the intelligent sensor ports for connecting environmental, security and power monitoring sensors. Use the SPX+ as part of a smartRack system, incorporating Thermal Maps, RFID Swing Handle Cabinet Locks, In-Line Power Meters and Water Leak detection. Mount an LCD display on the front of the cabinet to see sensor details, and utilize siren and strobes for alarming to critical situations.

LCD Display
Show status of any attached sensors.

Sensor Status Light
Show a sensor status with green, yellow and red lights. Audible alerts with built in buzzer.



Power Monitoring
Monitor your cabinets power consumption, calculate PUE, check how close you are to max circuit loads. Billable grade accuracy.

Fire Suppression
Combine in-line main power relay together with ACKP Smoke Detector and alerts to prevent a shutdown of the data center (Patent Pending Technology)

Thermal Map
Monitor temperature and humidity at the top, middle and bottom

RFID Swing Handle Lock
Secure your cabinet against un-authorized access

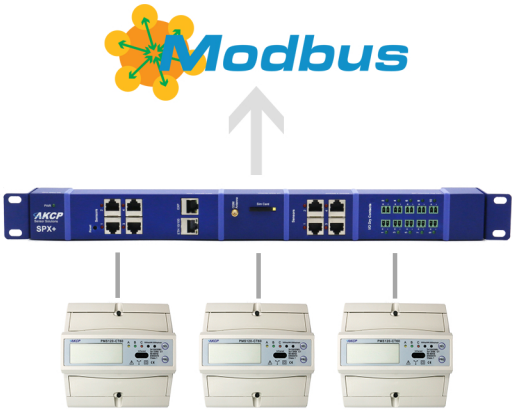
SNMP Devices
Monitor UPS, managed switches and servers via SNMP

SPX+ as Modbus Gateway

The SPX+ is a cost effective solution for use in Industrial applications as a Modbus <-> SNMP gateway. Featuring Modbus RTU <-> TCP/IP as well as Modbus RTU or TCP/IP <-> SNMP gateway, it can function as either a master or slave device. With the addition of the Modbus module you can expand the number of Modbus RTU ports and function as both master and slave simultaneously.

Modbus Master Gateway.

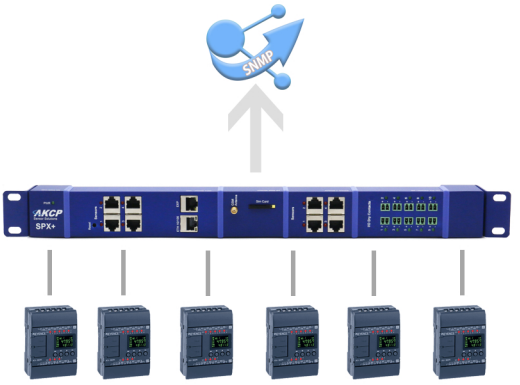
When acting as a Modbus Master Gateway, SPX+ is able to poll up to 150 sensor values and map them to any Modbus registry over RS485 or TCP/IP.



Up to 150 sensor values can be mapped to Modbus Register

Modbus Slave Gateway

As a Modbus Slave Gateway, SPX+ can poll over TCP or RS485 up to 32 values from Modbus devices. monitor from AKCess Pro server, or your favourite NMS software.



Up to 32 Modbus Values monitored over TCP/IP or RS485

Application of Modbus

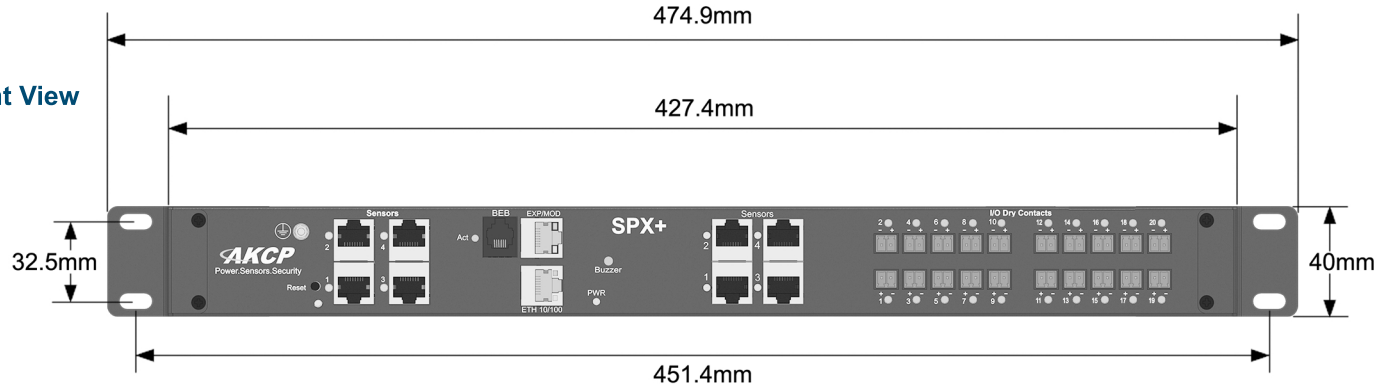
Modbus on the SPX+ can be used to connect with a generator engine control panel, giving remote monitoring capabilities for your genset. Poll engine parameters over Modbus such as oil pressure, KVA Output, engine speed, water temperature, runtime and engine status. Be alerted when your generator requires maintenance, or if a parameter it outside of pre determined thresholds. Combine this with fuel level monitoring, utilizing the AKCP Ultrasonic Fuel Level Sensor and you have a complete remote site, engine monitoring system.

Technical Drawings

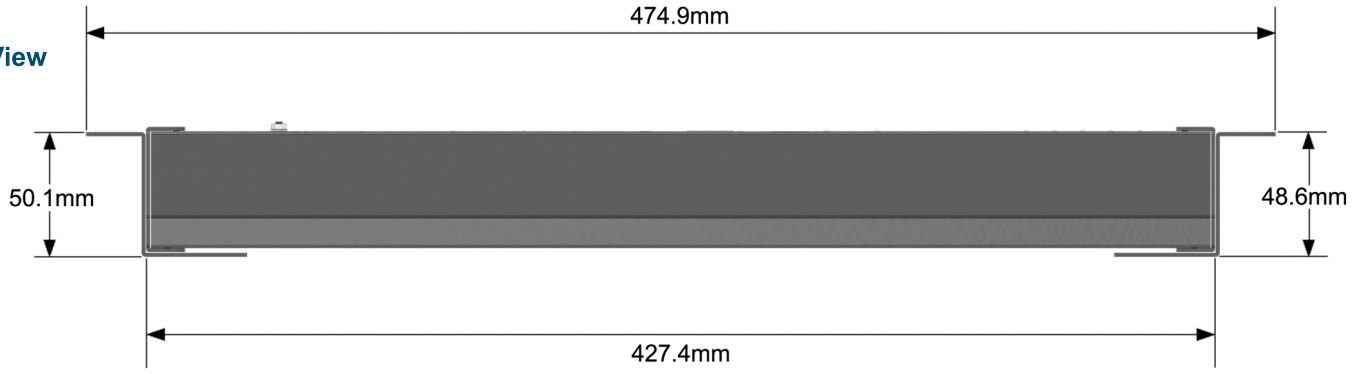
SPX+ with dryConX20 module

1U rack mounted unit with 8x intelligent sensor ports and 20x dry contacts (configured as input only, I/O or opto isolated)

Front View



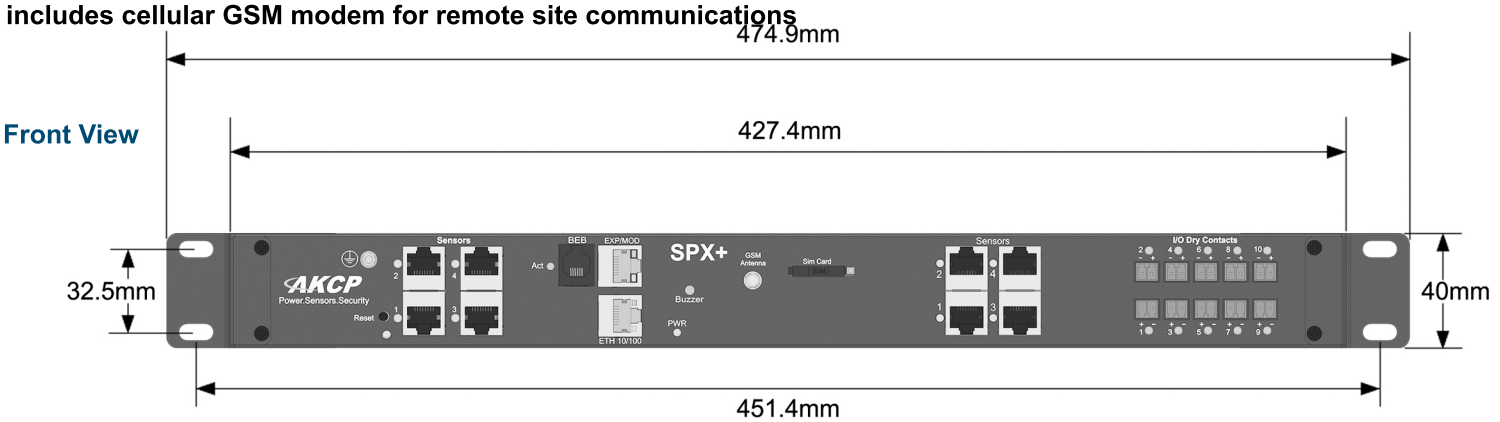
Plan View



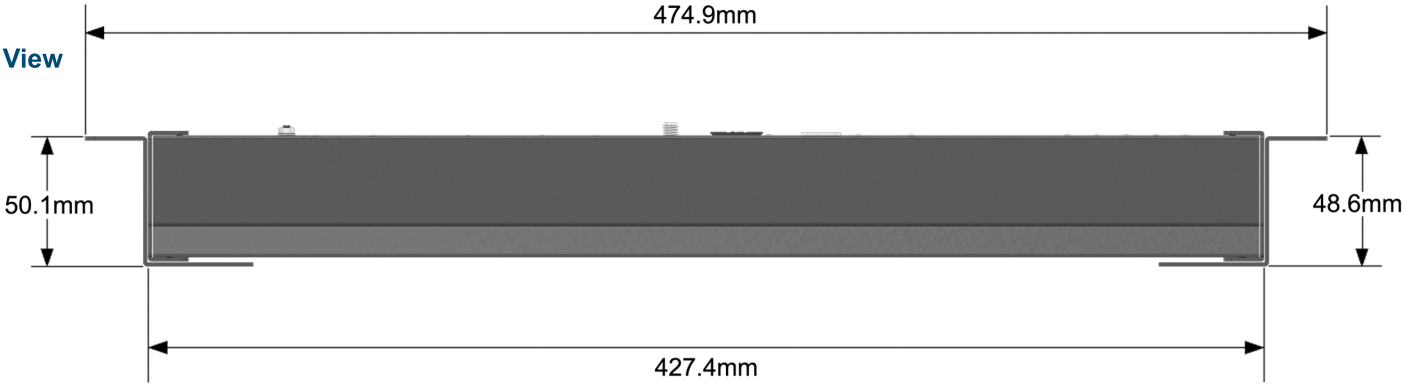
SPX+ with dryConX10 and internal cellular data modem

1U rack mounted unit with 8x intelligent sensor ports and 10x dry contacts (configured as input only, I/O or opto isolated). includes cellular GSM modem for remote site communications

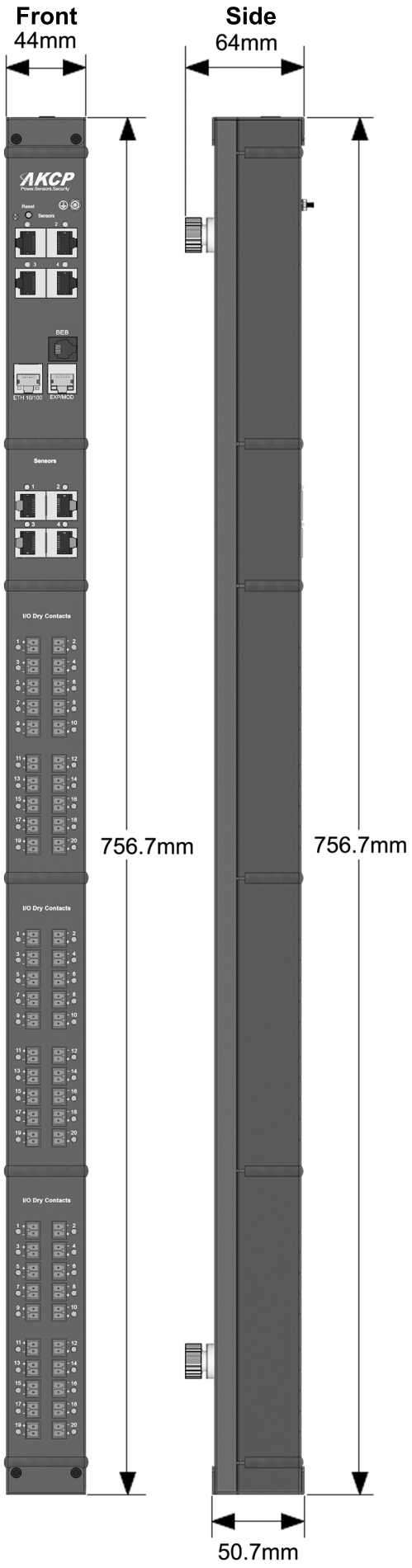
Front View



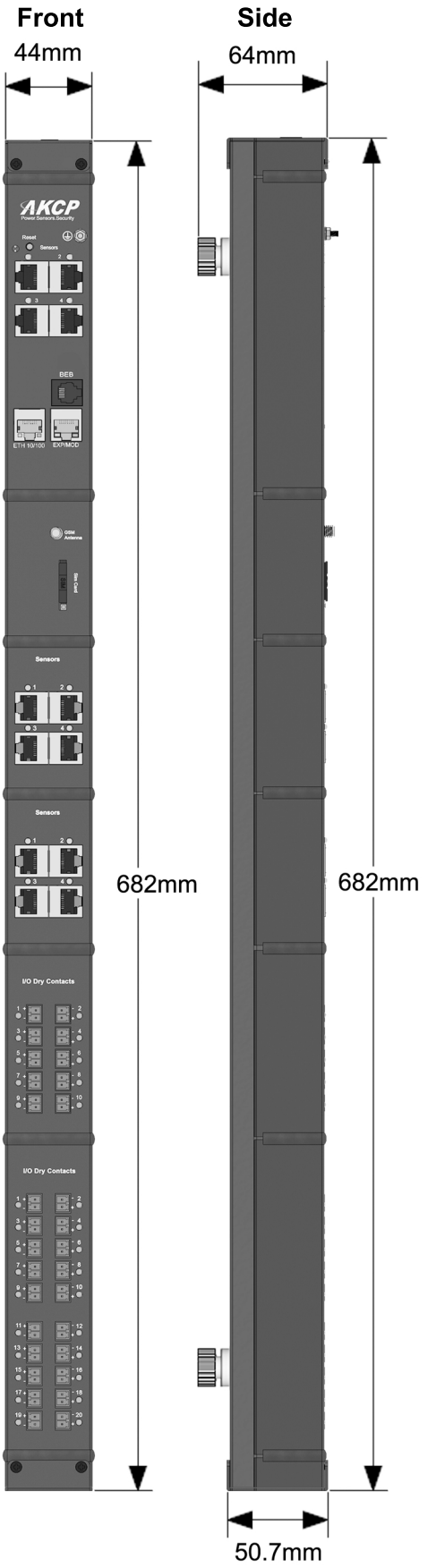
Plan View



0U SPX+ with 60x dry contacts
(configured as input only, I/O or opto isolated).



0U SPX+ with 12x sensor ports and 30x dry contacts (configured as input only, I/O or opto isolated).



Technical Specifications

Dimension	44 (W) x 46 (H) low profile design
Expansion Port	EXP port for conecting SPX+ EXP Remote Units BEB port for connecting SPX+ BEB Remote Units
Mounting	0U Toolless rack mount, optional wall mount brackets, horizontal 1U mounting or DIN rail brackets.
Power	External 5V 3A Power Adapter Input Voltage and Current ratings : 100V~240V - 0.22A
Status Indication	LED for power, network connection, sensor online and threshold status. Internal Buzzer for audible alerts
Operating Environment	Temperature : Min. -35° C - Max.70° C Humidity : Min 20% - Max. 80% (Non-Condensing)
MTBF	1,400,000 Hours based on field experience with sensorProbe units
Base Unit	4x Sensor Ports for connecting AKCP sensors 1x Expansion Out Port (Optionally used for Modbus) 1x 10/100 Ethernet Port
Max Sensors	Maximum of 150 onlined sensors, including Expansion Units and virtual sensors. Reduced to 50 if VPN is enabled
SPX+ Modules	4x Sensor Ports module for 10x or 20x Dry module, available in 3 configurations : - Configurable I/O dry Contact (0VDC/5VDC) - Input only 5V Dry Contact, opto-coupled input - Isolated input Dry Contact, from 5V to 20V voltage input signal 3G or 4G cellular data modem with extenal antenna. (GSM/CDMA) 4x 0-5VDC input for third party sesnors 4x Mini relays for driving larger relays 2x 0-5VDC input for third party sensors with 2x Mini relays Internal mini UPS, 4x AA rechargable batteries Valve control / DC motor control module

About AKCP

AKCP established in the USA in 1981, created the market for networked temperature, environmental and power monitoring solutions. Today with over 100 employees and 130,000 installations, AKCP is the world's oldest and largest manufacturer of SNMP enabled networked sensors.