Vertiv™ SiteScan™ SSW20 Hardware

Introduction

Vertiv™ Sitescan™ Web SSW20 hardware is the new, updated hardware set that replaces the legacy Vertiv™ SiteLink hardware used to support Vertiv SiteScan Web. It is compatible with Vertiv SiteScan Web versions 8.5 and later; earlier versions may be compatible with the latest cumulative patch.

The new Vertiv Sitescan SSW20 hardware is not limited by the number of ports, Modbus clients, or SNMP agents, unlike the legacy Vertiv SiteLink hardware. Vertiv Sitescan SSW20 hardware operates on a point system, with a set number of points available to be used for monitoring. BACnet, Modbus, and SNMP points are supported in varying levels based on hardware selection. Velocity and IGMnet protocols are NOT currently supported by the Vertiv Sitescan SSW20 modules.

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Vertiv™ Sitescan™ SSW20-Gateway

Features

- Provides BACnet routing between any supported BACnet communication types
- Runs most control programs from libraries: Modbus (32xx), SNMP (34xx), and Universal (35xx)
- Supports two BACnet/IP networks communicating on the Gig-E port
- Supports a BACnet Broadcast Management Device (BBMD) on each BACnet/IP network
- Foreign Device Registration (FDR) supported
- DHCP IP addressing supported
- Built-in network diagnostic capture functionality for easy troubleshooting
- Network statistics available numerically and as trend graphs
- Supports Rnet devices
- Option for gateway to act as a:
  - Master or slave on a Modbus serial network
  - Server or client on a Modbus TCP/IP network

Overview

The Vertiv™ Sitescan™ SSW20-GATEWAY is a high-performance gateway designed to support BACnet, Modbus, and SNMP protocols. The gateway integrates seamlessly with building automation systems. Its versatility is an advantage, and the unit can be used to monitor most equipment.

Beyond basic integration, the Vertiv Sitescan SSW20-GATEWAY leverages control logic to enhance its functionality, enabling it to generate alarms based on defined conditions, perform unit conversions, and incorporate additional control logic to customize for other conditions.

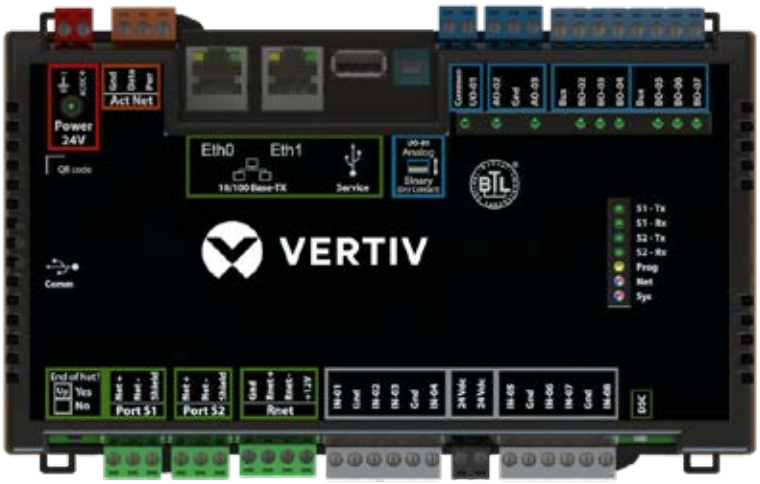
The gateway supports a total of 5000 points. There are 1500 BACnet points by default and 3500 points that can be assigned to BACnet, Modbus, or SNMPv1, v2c, v3.

Vertiv™ Sitescan™ SSW20-GATEWAY Specifications

Port Specifications

Communication Ports	Port S1	High-speed EIA-485 port with End of Net switch configurable with rotary switch for connecting one of the following network types: • BACnet ARCnet network at 156 kbps • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, 76.8, or 115.2 kbps • MODBUS RTU at 9.6, 19.2, 38.4, 57.6, 76.8 or 115.2 kbps
	Port S2	Electrically isolated EIA-485 port with End of Net switch configurable in firmware for connecting one of the following network types: • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, , 76.8, or 115.2 kbps • MODBUS RTU at 9.6, 19.2, 38.4, 57.6, 76.8 or 115.2 kbps
	Gig-E Port	10/100/1000 BaseT Ethernet port for BACnet/IP and/or BACnet/Ethernet and/or MODBUS TCP/IP communication on the Ethernet at 10, 100, or 1000 Mbps, full duplex
	Service Port	10/100 Base T Ethernet port for system start-up and troubleshooting
	Rnet Port	Communicate with ZS communicating sensors and local EQT displays.
	USB Port	USB 2.0 host port for device recovery
	Power	24 Vac ±10%, 50-60 Hz, 50 VA, 26 Vdc ±10%, 15 W, Single Class 2 source only, 100 VA or less
	Microprocessor	32-bit ARM Cortex-A8, 600MHz, processor with multi-level cache memory
	Memory	16 GBs eMMC Flash memory and 256 MB DDR3 DRAM (22 MB available to use).
	EMC Protection	The power and network ports comply with the EMC requirements EN50491-5-2. Replaceable, fast acting, 250 Vac, 2A, 5mm x 20mm glass fuse
	Time Tracking	Up to 72 hours of time tracking via internal clock
	Operating Temperature	-40° to 158° F (-40° to 70° C)
	Humidity	10 - 90% relative humidity, non-condensing
	Physical	Fire-retardant plastic ABS, UL94-5VA
	Mounting	DIN Rail or screws
	Dimensions	7.1 in. (18.03 cm) x 6.95 in. (17.65 cm) x 2.09 in. (5.31 cm)
	Weight	1.1 lbs (0.482 kg)

Vertiv™ Sitescan™ SSW20-IO8 Gateway Expander with 8 I/O Ports



Features

- 8 universal inputs, 6 binary outputs, 2 analog outputs, and 1 universal output
- Universal output can be configured as binary, analog, or pulse-width modulated analog
- Runs control programs
- Supports BACnet/IP communications on the 10/100 Ethernet port as a single node in a daisy-chain configuration or as part of a network using a ring topology
- Supports BACnet MS/TP and Modbus RTU
- DHCP IP addressing supported
- Built-in network diagnostic capture functionality for easy troubleshooting
- Network statistics available numerically and as trend graphs
- Supports Rnet devices
- Option for gateway to act as a:
  - Master or slave on a Modbus serial network
  - Server or client on a Modbus TCP/IP network

Overview

The Vertiv™ Sitescan™ SSW20-IO8 is a high-performance direct digital controller (DDC). It provides speed, power, memory, and I/O flexibility in a compact package.

Made with integration in mind, the Vertiv Sitescan SSW20-IO8 can integrate with building automation systems via BACnet (IP or MSTP) or Modbus (IP or serial). The dual IP ports provide the ability to take advantage of a daisy-chain topology. It also allows for connecting to communicating devices like VFDs via BACnet or Modbus.

Vertiv™ Sitescan™ SSW20-IO8 Specifications

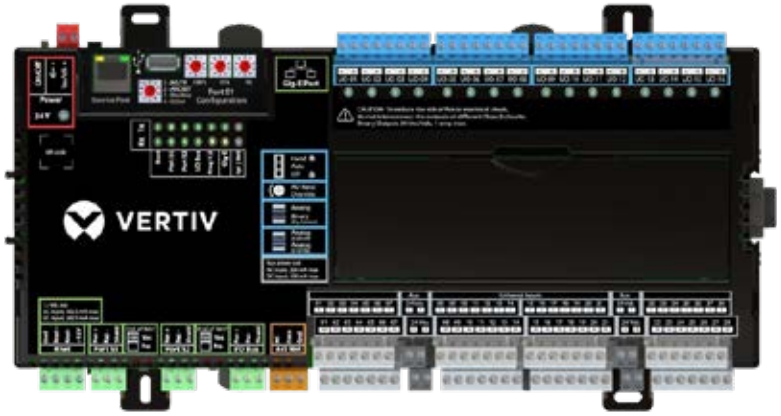
	Specifications	
Communication Ports	Port S1	High-speed EIA-485 port with End of Net switch configurable with rotary switch for connecting one of the following network types: • BACnet ARCnet network at 156 kbps • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, 76.8, or 115.2 kbps • MODBUS RTU at 9.6, 19.2, 38.4, 57.6, 76.8 or 115.2 kbps
	Port S2	Electrically isolated EIA-485 port with End of Net switch configurable in firmware forconnecting one of the following network types: • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, , 76.8, or 115.2 kbps • MODBUS RTU at 9.6, 19.2, 38.4, 57.6, 76.8 or 115.2 kbps
	ETH0 or Eth1 Port	10/100 BaseT Ethernet port for BACnet/IP and/or BACnet/Ethernet and/or MODBUS TCP/IP communication on the Ethernet at 10, 100, full duplex
	USB Service Port	USB 2.0 host port for setting up the controller and troubleshooting through a local connection to a computer
	Rnet Port	Communicate with ZS communicating sensors and local EQT displays.
	USB Port	USB 2.0 host port for device recovery
	Power	24 Vac ±10%, 50-60 Hz, 50 VA, 26 Vdc ±10%, 15 W, Single Class 2 source only, 100 VA or less
	Microprocessor	32-bit ARM Cortex-A8, 600MHz, processor with multi-level cache memory
	Memory	16 GBs eMMC Flash memory and 256 MB DDR3 DRAM (22 MB available to use).
	EMC Protection	The power and network ports comply with the EMC requirements EN50491-5-2. Replaceable, fast acting, 250 Vac, 2A, 5mm x 20mm glass fuse
	Time Tracking	Up to 72 hours of time tracking via internal clock
	Operating Temperature	--40° to 158° F (-40° to 70° C)
	Humidity	10 - 90% relative humidity, non-condensing
	Physical	Fire-retardant plastic ABS, UL94-5VA
	Mounting	DIN Rail or screws
	Dimensions	7.785 in. (19.77 cm) x 4.89 in. (12.43 cm) x 2.00 in. (5.09 cm)
	Weight	1.6 lbs (0.82 kg)

Vertiv™ Sitescan™ SSW20-IO8 Input Specifications

The Vertiv Sitescan SSW20-IO8 has inputs that accept the signals listed below.

Signal Type	Description
Thermistor 1	• Precon Type 2 (10kOhm at 77 °F) • Precon Type 3 (10kOhm at 77 °F) • Carrier YSI 5kOhm at 77 °F • TS-5700-850 10kOhm w/ 11kOhm shunt (5238 ohm@77°F) • Input voltages should be from 0.09 Vdc to 4.36 Vdc for thermistors.
Dry Contact	• The maximum current when the contact is closed is 0.5 mA. • The input voltage should be 4.5V when the contact is open. • Maximum closed contact resistance is 1kOhms.
0 – 5 Vdc 0 – 10 Vdc	The input impedance is approximately 221 kOhm when configured as a 0 – 10 Vdc voltage input.
0 – 20 mA	• The input resistance on the positive (+) terminal is 200 Ohms when configured as a current input. • Each 24 Vdc connector is capable of supplying 24 Vdc to multiple 4–20 mA transducers.
RTD1	• Platinum 1kOhm at 32°F (0°C) (0.00375 TCR) • Nickel-iron 1kOhm at 70°F (21°C) • Platinum TS-8000 1kOhm at 32°F (0°C) (0.00385 TCR) • Balco (nickel-iron) TS8000 1kOhm at 70°F (21°C) • Input voltages should be from 0.3–0.68V. NOTE: Vertiv recommends use of an external current transducer between an RTD and the SSW20-IO8 to improve accuracy and resolution.

Vertiv™ Sitescan™ SSW20-IO28 Gateway Expander with 28 I/O Ports



Features

- Provides 28 universal inputs and 16 universal outputs
- Universal output can be configured as binary, analog, or pulse-width modulated analog
- Runs control programs
- Supports BACnet MS/TP and Modbus RTU
- DHCP IP addressing supported
- Built-in network diagnostic capture functionality for easy troubleshooting
- Network statistics available numerically and as trend graphs
- Supports Rnet devices
- Option for gateway to act as a:
  - Master or slave on a Modbus serial network
  - Server or client on a Modbus TCP/IP network

Overview

The Vertiv™ Sitescan™ SSW20-IO28 is a high-performance direct digital controller (DDC). It provides speed, power, memory, and I/O flexibility in a compact package.

Made with integration in mind, the Vertiv Sitescan SSW20-IO28 can integrate with building automation systems via BACnet (IP or MSTP) or Modbus (IP or serial). The dual IP ports provide the ability to take advantage of a daisy-chain topology. It also allows for connecting to communicating devices like VFDs via BACnet or Modbus.

Vertiv™ Sitescan™ SSW20-IO28 Specifications

Specifications		
Communication Ports	Port S1	High-speed EIA-485 port with End of Net switch configurable with rotary switch for connecting one of the following network types: • BACnet ARCnet network at 156 kbps • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, 76.8, or 115.2 kbps • MODBUS RTU at 9.6, 19.2, 38.4, 57.6, 76.8 or 115.2 kbps
	Port S2	Electrically isolated EIA-485 port with End of Net switch configurable in firmware forconnecting one of the following network types: • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, , 76.8, or 115.2 kbps • MODBUS RTU at 9.6, 19.2, 38.4, 57.6, 76.8 or 115.2 kbps
	ETH0 or Eth1 Port	10/100 BaseT Ethernet port for BACnet/IP and/or BACnet/Ethernet and/or MODBUS TCP/IP communication on the Ethernet at 10, 100, full duplex
	Service Port	10/100 Base T Ethernet port for system start-up and troubleshooting
	Rnet Port	Communicate with ZS communicating sensors and local EQT displays.
	USB Port	USB 2.0 host port for device recovery
	Power	24 Vac ±10%, 50-60 Hz, 50 VA, 26 Vdc ±10%, 15 W, Single Class 2 source only, 100 VA or less
	Microprocessor	32-bit ARM Cortex-A8, 600MHz, processor with multi-level cache memory
	Memory	16 GBs eMMC Flash memory and 256 MB DDR3 DRAM (22 MB available to use).
	EMC Protection	The power and network ports comply with the EMC requirements EN50491-5-2. Replaceable, fast acting, 250 Vac, 2A, 5mm x 20mm glass fuse
	Time Tracking	Up to 72 hours of time tracking via internal clock
	Operating Temperature	-40° to 158° F (-40° to 70° C)
	Humidity	10 - 90% relative humidity, non-condensing
	Physical	Fire-retardant plastic ABS, UL94-5VA
	Mounting	DIN Rail or screws
	Dimensions	12.75 in. (32.38 cm) x 6.95 in. (17.65 cm) x 2.09 in. (5.31 cm)
	Weight	2.7 lbs (1.22 kg)

Vertiv™ Sitescan™ SSW20-IO28 Input Specifications

The Vertiv Sitescan SSW20-IO28 has inputs that accept the signals listed below.

Signal Type	Description
Thermistor 1	• Precon Type 2 (10kOhm at 77 °F) • Precon Type 3 (10kOhm at 77 °F) • Carrier YSI 5kOhm at 77 °F • TS-5700-850 10kOhm w/ 11kOhm shunt (5238 ohm@77°F) • Input voltages should be from 0.09 Vdc to 4.36 Vdc for thermistors.
Dry Contact	• The maximum current when the contact is closed is 0.5 mA. • The input voltage should be 4.5V when the contact is open. • Maximum closed contact resistance is 1kOhms.
0 – 5 Vdc 0 – 10 Vdc	The input impedance is approximately 221 kOhm when configured as a 0 – 10 Vdc voltage input.
0 – 20 mA	• The input resistance on the positive (+) terminal is 200 Ohms when configured as a current input. • Each 24 Vdc connector is capable of supplying 24 Vdc to multiple 4–20 mA transducers.
RTD1	• Platinum 1kOhm at 32°F (0°C) (0.00375 TCR) • Nickel-iron 1kOhm at 70°F (21°C) • Platinum TS-8000 1kOhm at 32°F (0°C) (0.00385 TCR) • Balco (nickel-iron) TS8000 1kOhm at 70°F (21°C) • Input voltages should be from 0.3–0.68V. NOTE: Vertiv recommends use of an external current transducer between an RTD and the SSW20-IO28 to improve accuracy and resolution.

Vertiv™ Sitescan™ SSW20-SC-ROUTER
BACnet Secure Router

Features

- Provides BACnet routing between any supported BACnet communication types
- Two additional BACnet ports to support either two simultaneous BACnet MS/TP networks (up to 127 controllers each)
- Supports a BACnet Broadcast Management Device (BBMD) on each BACnet/IP network
- Foreign Device Registration (FDR) supported
- DHCP IP addressing supported
- Password protected Ethernet service port at 100 Mbps for system start-up and troubleshooting

Overview

The Vertiv™ Sitescan™ SSW20-SC-ROUTER is a high-performance BACnet router. It routes BACnet messages between the building automation system backbone (BACnet/IP) and a subnetwork of controllers.

This router is typically only needed if BACnet Secure Connect is a requirement.

Vertiv™ Sitescan™ SSW20-SC-ROUTER Specifications

Specifications		
Communication Ports	Port S1	High-speed EIA-485 port with End of Net switch configurable with rotary switch for connecting one of the following network types: • BACnet ARCnet network at 156 kbps • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, 76.8, or 115.2 kbps
	Port S2	Electrically isolated EIA-485 port with End of Net switch configurable in firmware forconnecting one of the following network types: • BACnet MS/TP network at 9.6, 19.2, 38.4, 57.6, , 76.8, or 115.2 kbps
	ETH0 or Eth1 Port	10/100 BaseT Ethernet port for BACnet/IP and/or BACnet/Ethernet and/or MODBUS TCP/IP communication on the Ethernet at 10, 100, full duplex
	Service Port	10/100 Base T Ethernet port for system start-up and troubleshooting
	USB Port	USB 2.0 host port for device recovery
	Power	24 Vac ±10%, 50-60 Hz, 50 VA, 26 Vdc ±10%, 15 W, Single Class 2 source only, 100 VA or less
	Microprocessor	32-bit ARM Cortex-A8, 600MHz, processor with multi-level cache memory
	Memory	16 GBs eMMC Flash memory and 256 MB DDR3 DRAM (22 MB available to use).
	EMC Protection	The power and network ports comply with the EMC requirements EN50491-5-2. Replaceable, fast acting, 250 Vac, 2A, 5mm x 20mm glass fuse
	Time Tracking	Up to 72 hours of time tracking via internal clock
	Operating Temperature	-40° to 158° F (-40° to 70° C)
	Humidity	10 - 90% relative humidity, non-condensing
	Physical	Fire-retardant plastic ABS, UL94-5VA
	Mounting	DIN Rail or screws
	Dimensions	7.1 in. (18.03cm) x 6.95 in. (17.65 cm) x 2.09 in. (5.31 cm)
	Weight	1.1 lbs (0.482kg)

Cross-Reference for New & Legacy Hardware

New Hardware	Supports	Replaces	Startup	Essential Service Contract
SSW20-GATEWAY	• BACnet, Modbus and SNMP integration • Up to 5000 points	SITETPI-E SSW-IPE Sitelink-2E Sitelink-4E Sitelink-12E	SSW20GW100	MSSSW20GW100ES
SSW20-IO8	• BACnet and Modbus integration • Up to 300 points • 8 Universal Inputs • 1 Universal Output • Hardwired connections	SSW-IOE	SSTEIOESU	MSSTEIOE
SSW20-IO28	• BACnet and Modbus integration • Up to 1500 points • 28 Universal Inputs • 16 Universal Outputs • Hardwired connections	SSW-28IOE	SSTEIOESU	MSSTEIOE
SSW-SC-ROUTER		N/A	SSW20GW100	MSSSW20GW100ES
SSW20-DRPOWER	External DIN rail power supply unit 24 V DC	XFMR24		

Integrating a Vertiv™ Sitescan™ SSW20-GATEWAY requires all monitored devices to be capable of communicating one of the following protocols:

- Modbus
- BACnet
- SNMP

This may require purchasing and installing Intellislot/RDU cards.

The Vertiv Sitescan SSW20-GATEWAY does not come with dedicated serial ports for Velocity.

Cross-Reference for New & Legacy Hardware

Protocols and Limitations

Legacy Hardware	Protocol	Limitation
SiteLink-12E	Velocity / IGM	12 ports
	Modbus	4 devices
	SNMP	2 devices
SiteLink-4E	Velocity / IGM	4 ports
	Modbus	4 devices
	SNMP	2 devices
SiteLink-2E	Velocity / IGM	2 ports
	Modbus	4 devices
	SNMP	2 devices
SiteTPI-E	Modbus	30 Devices total
	BACnet	1500 Points total*
SiteIP-E	SNMP	32 Devices
		1200 points*
SiteIO-E	Dry-Contact	12 Inputs
Site28IO-E	Dry-Contact	28 Inputs

New Hardware	Protocol	Limitation
SSW20-Gateway	BACnet	5000 total points
	Modbus	3500 points
	SNMP	3500 points
SSW20-IO28	Dry-Contact	28 Inputs
	BACnet	1500 points
	Modbus	1000 points
SSW20-IO8	Dry-Contact	8 Inputs
	BACnet	300 points
	Modbus	300 points

* Point recommendation for legacy hardware based on memory limitations. Poll rates, response rates, and other parameters impact the performance of the module.

Cross-Reference for New & Legacy Hardware

Configuration Scenarios

The following are different scenarios showing examples of new hardware configurations compared to the equivalent legacy hardware configuration.

Monitored Equipment	Legacy	New
10 Vertiv UPS/CRAC in the same relative area	(1) Sitelink-12E	(1) SSW20-Gateway
6 Vertiv UPS/CRAC in 3 distant areas in the same building	(3) Sitelink-2E	(1) SSW20-Gateway
2 Generators (Dry-contact) 4 Transfer Switches (Modbus)	(1) Site28IO-E (1) SiteTPI-E	(1) SSW20-IO28
20 Geist PDU's	(2) Site-IPE	(1) SSW20-Gateway
4 FDC (LDMf) / TFX (DPM) 6 RX (LDMf) / RXV (DPM)	(10) Sitelink-2E	(3) SSW20-Gateway*
12 Vertiv UPS/CRAC in 3 distant areas in the same building 1 Generator (Dry-contact) 4 Transfer Switches (Modbus) 5 Geist PDU's	(1) Sitelink-12E (1) Sitelink-4E (1) Sitelink-2E (1) SiteIO-E (1) SiteTPI-E	(1) SSW20-Gateway* (1) SSW20-IO8**
3 Vertiv UPS units in 3 different cities	(3) Sitelink-2E	(3) SSW20-IO8*** or (3) SSW20-IO28*** or

* Dependent upon the total number of protocol points

** Dependent upon the number of IO points required, may require Vertiv™ Sitescan™ SSW20-IO28

*** Dependent upon the total number of BACnet / Modbus points

Vertiv™ Equipment Point Count

Air Equipment	Points
DS - Level 0 Controls	40
DS - Level 0 Controls	70
DS - AM Controls	70
DS - SM Controls	40
MiniMate-2	60
Atlas Air Unit	70
DS - iCOM Vel. V3 LBDS	180
Small Room (SRC)	10
Small Room (SRC-CMS)	20
iCOM - PA (Velocity V4)	700*
iCOM - PCW (EMEA A9H)	380*
iCOM - CRV	170*
XDU450	100
iCOM3 - PDX PCW (V1A)	590*

Power Equipment	Points
Static Switch 2	90
PMP	40
PM2	60
LDMf - Input	60
LDMf - Subfeed	20
LDMf - Panel	40
LDMf - Breaker	20
DPM - Input	70
DPM - Subfeed	30
DPM - Panel	40
DPM - Breaker	15
Geist - Main	30
Geist - Outlet	10

UPS Equipment	Points
APS	100
APM	110
APM2	
eXL-S1	150
eXL SMS	210
EXM	140
EXM2	280
EXS	90
GXT 4,5	100
Nfinity	70
NXA or NXB	50
NXL SMS	210
NX 225-600 kVA	130
Series 600	40
Series 610	80
Trinergy Cube	120

Battery Equipment	Points
Alber BDS40	30
Alber BDSU50	50
HPL - System	10
HPL - Cabinet	220
HPL2 (EnergyCore) - Sys	20
HPL2 (EnergyCore) - Cab	210
Samsung - System	20
Samsung - Cabinet	270

*Typical usage is 50% of total points shown.