

DeltaV SIS™ Safety Network Components



NextGen DeltaV™ SIS Smart Switches

LSNB

The safety network components are based on standard Ethernet technology and are dedicated to the DeltaV SIS™.

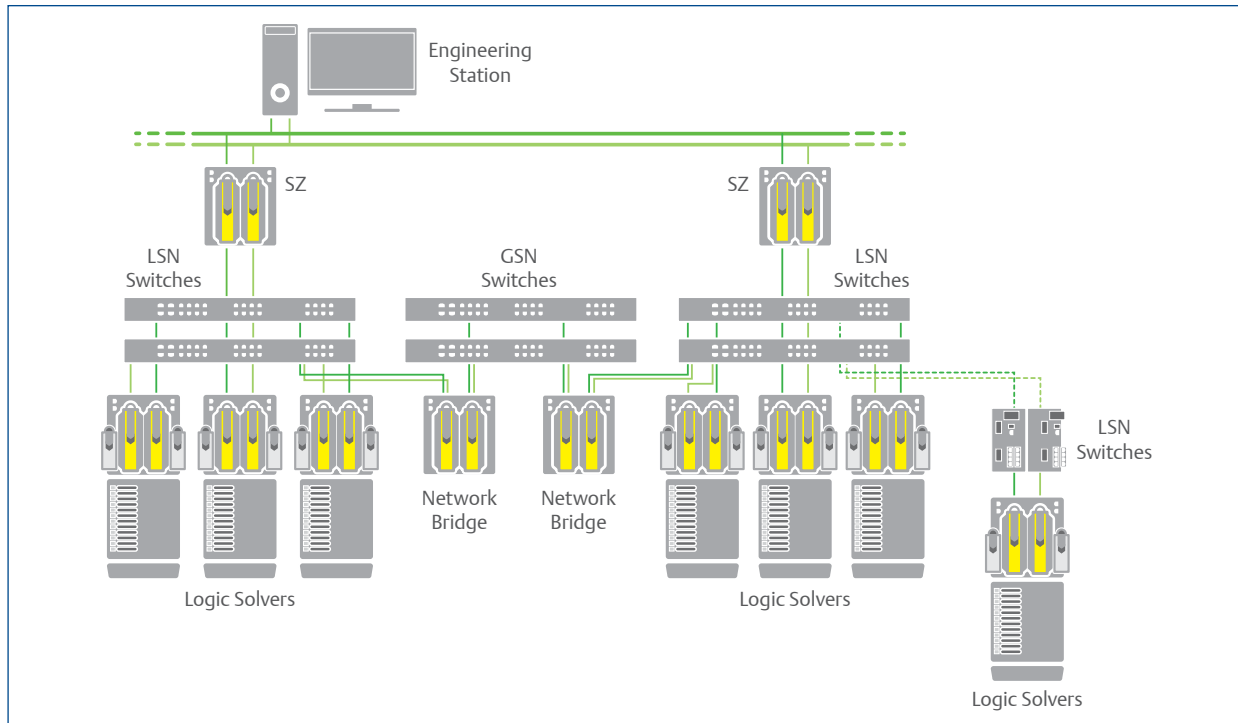
- Dedicated to safety – no possibility of common-cause control and safety communication failures
- Required update time supported on the DeltaV SIS™ local safety network
- Scalable and cost-effective
- Fully redundant networks

Introduction

The local safety network (LSN) is the communication backbone of the DeltaV SIS™ process safety system. The LSN is a standard Ethernet network dedicated to the DeltaV SIS system that enables communication between CHARMS smart logic solvers (CSLS) and a single SZ controller. The CSLs communicate secure parameters and input data to other CSLs over the LSN.

SZ controllers connect to both the area control network and the LSN to isolate the CSLs from the process control system.

Starting with v13, the global safety network (GSN) enables safety-rated communication among LSNs while allowing functional segregation on different LSNs. A typical example is separation of fire and gas (F&G) and emergency shutdown (ESD) applications over separate LSNs while allowing safe and secure communication across both applications. Starting with v14.LTS, the GSN can be logically separated in domains which are a group of LSNs.



DeltaV SIS safety network architecture diagram.

Benefits

Dedicated to safety. Some systems from other vendors use the same networks for both control and safety. The DeltaV SIS LSN and GSN are dedicated to safety, carrying only safety-rated signals and isolated from the control network. They are therefore immune to any failure of the control network.

Fifty millisecond update time. All the data broadcast on the LSN is available to every CSLS on the same LSN every 50 milliseconds. Combined with the speed of the CSLS, the 50 millisecond update time guarantees input-to-output time of less than 300 milliseconds anywhere on the LSN when the CSLS is configured for 50-millisecond scan rate.

Plug-and-play components. As a dedicated safety network with predictable communications traffic, Emerson has done all of the system testing so you only have to plug the components together to create the safety networks.

Standards compliance. Network components are compliant with standards such as IEEE, CE, and CSA.

Scalable in small increments. You can expand the system readily and economically by adding hardware incrementally to your system. Just plug another CSLS into the LSN and it is recognized by the system. Online addition of new CSLSs will not interrupt your process.

Fully redundant communications. The safety networks are fully redundant communication networks. The carriers for all nodes have redundant safety network ports for communication with primary and secondary network connections.

Port mirroring functionality. Port Mirroring can be configured on the NextGen Safety Network Switches either with an “administrator” role or a “engineer” role. These switches have the capability to mirror the traffic of several source ports, in a read only manner, to a destination port (probe port).

LSN Description and Specification

The SZ controllers and CSLSs can be physically connected as a star topology (the LSN does not support network ring topologies).

Starting with DeltaV SIS v13, the LSN Bridge (LSNB) allows communication across multiple LSNs. The LSNB connect to the LSN following a star topology.

Refer to the latest DeltaV SIS Installation and Planning Guide for details of network layouts and network cable shielding requirements and power and grounding requirements for the overall DeltaV SIS system.

For Use in Safety Integrity Level (SIL) 3 Applications

The LSN is certified for use in SIL 3 applications.

Wiring

The LSN requires the use of Category 5e screened (ScTP) cable for the 100/1000 BaseT/TX safety network.

The maximum twisted-pair cable length for the LSN for any device is 100 meters (328 feet).

The CSLS, LSNB, and SZ controller carriers contain Ethernet ports to provide the redundant communication for the LSN.

Fiberoptic Wiring

Safety network ports (SNP) on the CSLS are available for copper only. DeltaV SIS Smart Switches can be connected using fiberoptic cables.

Because fiberoptic cables do not conduct electricity, they should be used in connections between buildings or in plant areas where electromagnetic interference is present.

Fiberoptic cabling must be used where cable runs are longer than 100 meters (328 ft.).

LSN Hardware Includes:

- NextGen DeltaV SIS Smart Switches
- Ethernet Isolation Ports on the SZ Controller
- SNPs on the CSLS carrier
- LSNB to communicate with other LSNs through a GSN.

A redundant CSLS communicates over the LSN with up to 15 other CSLSs, 1 SZ controller, and 1 LSNB allowing great flexibility and ease of system expansion.

Only DeltaV SIS Smart Switches are supported on the LSN. The LSN is certified according to the concept of black channel per IEC61508-2. Therefore, the LSN hardware components are considered as an interference free hardware component of the SIS.

GSN Description and Specification

Multiple LSNs can be connected using LSNBs. The LSNBs are physically connected as a star topology (GSN does not support network ring topologies). Starting with v14.LTS and later, the GSN can be logically separated in domains. A GSN domain is a logical group of LSNs.

Refer to the latest DeltaV SIS Installation and Planning Guide for details of network layouts and network cable shielding requirements and power and grounding requirements for the overall DeltaV SIS system.

For Use in SIL 3 Applications

The GSN is certified for use in SIL 3 applications.

Wiring

The GSN requires the use of ScTP cable for the 100/1000 BaseT/TX safety network.

The maximum twisted-pair cable length for the GSN for any LSNB is 100 meters (328 feet).

The LSNB contains Ethernet ports to provide the redundant communication for both the LSN and GSN.

Fiberoptic Wiring

Ethernet on the LSNB carrier are available for copper only. DeltaV SIS Smart Switches can be connected using fiberoptic cables.

Because fiberoptic cables do not conduct electricity, they should be used in connections between buildings or in plant areas where electromagnetic interference is present.

Fiberoptic cabling must be used where cable runs are longer than 100 meters (328 ft.).

GSN Hardware Includes:

- NextGen DeltaV SIS Smart Switches
- LSNBs to communicate with other LSNs throughout the GSN.

LSNB communicates over the GSN with other LSNBs, allowing great flexibility and ease of system expansion. Up to 16 LSNBs can publish safety data into one GSN domain but the maximum number of LSNBs publishing information depends on amount of data published by each LSNB. There is no limit for the number of LSNBs subscribing to information from the GSN. Prior to v14.LTS, only one domain was supported within the GSN, starting v14.LTS and later, up to 16 domains are supported within the GSN. Refer to Books Online for more information about system capacities.

Only DeltaV SIS Smart Switches are supported on the GSN. The GSN requires DeltaV SIS NextGen Smart Switches or the legacy DeltaV SIS Smart Switches with software release 4.2.14 or greater.

The GSN is certified according to the concept of black channel per IEC61508-2. Therefore, the GSN hardware components are considered as an interference free hardware component of the SIS.

NextGen DeltaV SIS Smart Switches

The DeltaV SIS Smart switches are “built-for-purpose” switches with DeltaV SIS specific software and features to make them plug-and-play in the safety network.

DeltaV SIS Smart Switches require no configuration to function on the safety network.

DeltaV SIS NextGen Smart Switches and the legacy DeltaV SIS Smart Switches are the only supported switch to be used within the LSN and GSN. DeltaV SIS Smart Switches are different than DeltaV Smart switches (non-SIS) and are not interchangeable.

NextGen DeltaV SIS Smart Switch Specifications

Ambient Conditions	SS6071F01C1 SS6071F04C1 SS6071F05C1 SS6071F06C1 DIN Rail Mount	SS6071F01C2 SS6071F04C2 SS6071F05C2 SS6071F06C2 DIN Rail Mount	SS6073R2P(1-4) Rack Mount Switches
Operating Temperature	0° to +60°C	-40° to +70°C	-10° to +60°C
Storage/Transport Temperature	-40° to +70°C (up to 1 year) -40° to +50°C (up to 2 years) 0°C to +30°C (up to 10 years) It is recommended that the NextGen Safety Switches be stored in a climate controlled environment		
Relative Humidity (Non-Condensing)	1% to 95%	1% to 95%	10% to 95%
Conformal-Coated	No	Yes	No
Harsh Area Rating	G2	G2 (conformal coating allows switch to be used in G3 environments but switch is not certified to G3)	G2
Mechanical stability – All switches except as noted: IEC 60068-2-27 shock 15 g, 11 ms duration, 18 shocks IEC 60068-2-6 vibration VE6071 DIN rail switches: 5 Hz ... 8,4 Hz with 3,5 mm amplitude; 2 Hz ... 13,2 Hz with 1 mm amplitude; 8,4 Hz ... 200 Hz with 1 g; 13,2 Hz ... 100 Hz with 0,7 g IEC 60068-2-6 vibration VE6072 and VE6073 Rack-mount switches: 3.5 mm, 5–8.4 Hz, 10 cycles, 1 octave/min; 1 g, 8.4–150 Hz, 10 cycles, 1 octave/min			
EMC emitted immunity: FCC CFR47 Part 15 FCC CFR47 Part 15 EN 55032 Class A			
EMC interference immunity SS6071F0(1, 4, 5, 6) DIN rail switches: EN 61000-4-2 electrostatic discharge (ESD) 6 kV contact discharge, 8 kV air discharge EN 61000-4-3 electromagnetic field 10 V/m (80-2000 MHz); 5 V/m (2000-2700 MHz); 3 V/m (5100-6000 MHz) EN 61000-4-4 fast transients (burst) 2 kV power line, 1 kV data line EN 61000-4-5 surge voltage power line: 2 kV (line/earth) and 1 kV (line/line); data line: 2 kV data line EN 61000-4-6 conducted immunity 10 V (150 kHz - 80 MHz)			
EMC interference immunity: SS6073R2P(1-4) Rack mount switches: EN 61000-4-2 electrostatic discharge (ESD) 6 kV contact discharge, 8 kV air discharge EN 61000-4-3 electromagnetic field 20 V/m (80-2700 MHz), 10V/m (2.7-6 GHz); 1 kHz, 80% AM EN 61000-4-4 fast transients (burst) 2 kV power line, 2 kV data line EN 61000-4-5 surge voltage power line: 2 kV (line/earth), 1 kV (line/line); data line: 1kV EN 61000-4-6 conducted immunity 3 V (10 kHz-150 kHz), 10 V (150 kHz-80 MHz)			

General Specifications for the SS6071F01, SS6071F04, SS6071F05, SS6071F06 DeltaV SIS Smart Switches

Power Requirements:

Operating voltage: 24V - 48V DC, 24 V AC

Power Consumption: 6 W - 9 W (depending on the model)

Mechanical Construction:

Dimensions MM (W x H x D)

73 x 138 x 115mm (2.87 x 5.43 x 4.52 in) Mounting DIN Rail

Weight 420 g - 570g - depending on the model

Protection class IP30

Provided in SS# - qty 1 LSN40 or LSN50 switch with terminal block.



PRODUCT NOTE: These switches are described as supporting local ports and uplink ports. Local ports are connected to a single device such as a SZ Controller or CSLS. An uplink port is connected to another switch. There is no difference in the way the ports function, and a port designated as an "uplink port" can be used as a local port.

General Specifications for the SS6073R2P(1-4) DeltaV SIS Smart Switches

Up to 26 port Fast Ethernet/Gigabit Ethernet Industrial Workgroup Switch.



Ports available:

Base module has 10 ports -- 4 uplink ports (10/100/1000 copper or using 100/1000 SFP modules) and 8 TX ports (10/100/1000 Base-TX) in a fixed configuration.

Up to 16 additional 100Mb ports using the SS6049 - 8 port Media Modules in any combination

– TX, MM fiber, SM fiber,
or 100Mb SFP transceivers.

Power Supply/signaling contact: 1 x plug-in terminal block, 2-pin, output manual or automatic switchable (max. 1 A, 24 V DC respectively 24 V AC)

V.24 Interface: 1 x RJ11 socket, serial interface for troubleshooting

USB Interface: For flash upgrade of switch software

Network Size - length of cable - base module:

Twisted pair (TP) - 8 TX port base module and wired 10/100/1000 ports: 0 - 100m

SFP module ports: Supports any combination of VE6050 1Gb or 100FX Transceivers

Smart Switch "Stacking" Support: SS6048 switches do not support "stacking". To create a central switch(s) of greater than 24 ports switches should be interconnected using the front panel gigabit ports

Power Requirements:

Operating voltage 100 - 240 VAC, 47 - 63 Hz

Power Consumption: 7,3 W (without media modules)

Power output in Btu (IT) h - 26,9 (without media modules)

Mechanical Construction:

Dimensions 448 x 310 x 44 (without mounting bracket)

Mounting 19" control cabinet





Weight 3.60 kg

Protection class IP20

Provided SS60 device, terminal block for signal contact, 2 brackets with fastening screws (pre-assembled), and housing feet - stick-on, power cable.

Order separately: Expansion modules, Fast Ethernet SFP modules, Gigabit Ethernet SFP modules. Expansion modules SS6049M01, SS6049M02, SS6049M03, and SS6049M04 can be used with SS6048-series DeltaV SIS Smart switches.

When rail mounted these switches require additional mounting supports in addition to 19" rail mounting brackets

Specifications for SS6049 Expansion Modules				
				
	Specifications for SS6049M01	Specifications for SS6049M02	Specifications for SS6049M03	Specifications for SS6049M04
Length of cable	100m	See fiber cable specs	See fiber cable specs	See fiber cable specs
Power Requirements:				
Current consumption	2 W	10 W	10 W	11 W
Power output in Btu(IT) h	7	34	34	37 including SFP modules
Mechanical Constructions:				
Dimensions MM (W x H x D)	138 x 90 x 42	138 x 90 x 42	138 x 90 x 42	138 x 90 x 42
Weight	0.21 Kg	0.18 Kg	0.18 Kg	0.13 Kg
Protection class	IP 20	IP 20	IP 20	IP 20

Fiberoptic Cable Specifications – Apply to All DeltaV SIS Smart Switch Models

Fiberoptic Cable Types	Specifications Specifications apply to all fiber connections on any model of DeltaV SIS Smart Switches <i>Actual fiberoptic distances achieved depend on the fiber type used and other components installed on the network such as splices and patch panels that can reduce Fiberoptic signal strength.</i>
Multimode fiber (MM) 50/125 μm	0 - 5000 m, 8 dB link budget at 1310 nm, A = 1 d/km, 3 dB reserve, B = 800 MHz x km
Multimode fiber (MM) 62.5/125 μm	0 - 4000 m, 11 dB link budget at 1310 nm, A = 1 dB/km, 3 dB reserve, B = 500MHz x km
Single mode fiber (SM) 9/125 μm	0 – 32.5 km, 16 dB link budget at 1310 nm, A = 0,4 dB/km, 3 dB reserve, D = 3,5ps/(nm x km)

NextGen DeltaV SIS Smart Switch Certifications

Declaration/ Approval	LSN40/50 SS6071	LSN40/50- ES SS6071	SRM200 SS6073
CE Declaration – Basic Standards EMC - Harmonized European Standards according to Directive 2014/30/EU <ul style="list-style-type: none"> - EN 55022:2010 Class A - Emission of Information Technology Equipment ITE (for industrial use only) - EN 55032:2015 Class A - Emission of Multimedia Equipment ME (for industrial use only) - EN 61000-6-4:2007+A1:2011 - Electromagnetic compatibility - Emission standard for industrial environments - EN 61000-6-2:2005 + IEC CDV 61000-6-2:2015 - Immunity for industrial environments - EN 61000-3-2:2014 - Limits for harmonic current emissions - EN 61000-3-3:2013 - Limitation of voltage changes, voltage fluctuations and flicker 	Class A	Class A	Class A
FCC Declaration (USA/Canada) <ul style="list-style-type: none"> - 47CFR:2019, Part 15, Subpart B, Class A - Unintentional radiators - ICES-003 Issue 6 2017 	Class A	Class A	Class A
cUL Approval according to UL 61010-1 and UL 61010-2-201 <ul style="list-style-type: none"> - UL 61010-1 3rd Edition 2012, Rev. 2015 - Industrial Control Equipment - US. Safety standard - UL 61010-2-201 1st Edition 2013 - Particular requirements for control equipment - CSA 22.2 No. 61010-1-12 3rd Edition, Rev. 2015 - ICE - Canadian safety standard 	Yes	Yes	N/A
Hazardous Locations – Approval according to ISA-12.12.-01 Class 1 Div. 2, Group A, B, C, D <ul style="list-style-type: none"> - ANSI/ISA 12.12.01: 2015 - CSA 22.2 No. 213-15: 2015 	Yes	Yes	N/A
IEC/EN 61131-2 Environmental and Safety Declaration <ul style="list-style-type: none"> - EN 61131-2: 2007 – Programmable Controllers – Environmental Requirements 	Yes	Yes	Yes
cUL Approval according to UL 62368-1 <ul style="list-style-type: none"> - UL 62368-1 2nd Edition 2014 - Information Technology Equipment - US. Safety standard - CSA 22.2 No. 60950-1-07, 2nd Edition, 2014-10 - ITE - Canadian safety standard 	N/A	N/A	Yes
IEC/EN 62368-1 Safety Declaration <ul style="list-style-type: none"> - EN 62368-1:2014 +AC2015 Information technology equipment - Safety Evaluated to national deviations of EU, USA, CA, AUS, NZ, China, Japan - Safety of Laser products regulations - EN 60825-1:2007 - Safety of laser products 	Yes	Yes	N/A

Declaration/ Approval	LSN40/50 SS6071	LSN40/50- ES SS6071	SRM200 SS6073
Safety - Harmonized European Standards according to Low-Voltage-Directive 2014/35/EU IEC/EN 62368-1 Safety Declaration <ul style="list-style-type: none"> - EN 62368-1:2014 +A11:2017 - Audio/video, information and communication technology equipment - Safety requirements - Evaluated to national deviations of EU - Safety of Laser products regulations - EN 60825-1:2007 - Safety of laser products (Class 1) 	N/A	N/A	Yes
ATEX Approval, Zone 2 <ul style="list-style-type: none"> - According to Directive 2014/34/EU, IECEx - Certification System - Equipment for use in Explosive Atmospheres 	N/A	Yes	N/A
IEC/EN 62368-1 CB Test Certificate <ul style="list-style-type: none"> - EN 62368-1:2014 +AC2015 - Information technology equipment - Safety - Evaluated to national deviations of EU, USA, CA, AUS, NZ, China, Japan 	N/A	N/A	Yes
DNV	No	Yes	No
Australian Regulatory Compliance Mark (RCM) Australian Radiocommunications Standard 2008, Radiocommunications Act 1992 <ul style="list-style-type: none"> - CISPR 32:2015, Class A - ITE - Radio disturbance characteristics - Limits and methods of measurement 	Yes	Yes	Yes
EAC: Russia, Kazakhstan, Belarus	Yes	Yes	Yes
EAC Ex	N/A	N/A	N/A
UKCA	Yes	Yes	Yes
UKEX	No	Yes	No
CCC Ex	Yes	Yes	No
RoHS - Harmonized European Standards according to Directive 2011/65/EU and 2015/863/EU <ul style="list-style-type: none"> - On the restriction of the use of certain hazardous substances in electrical and electronic equipment 	Yes	Yes	Yes
China ROHS	Yes	Yes	Yes

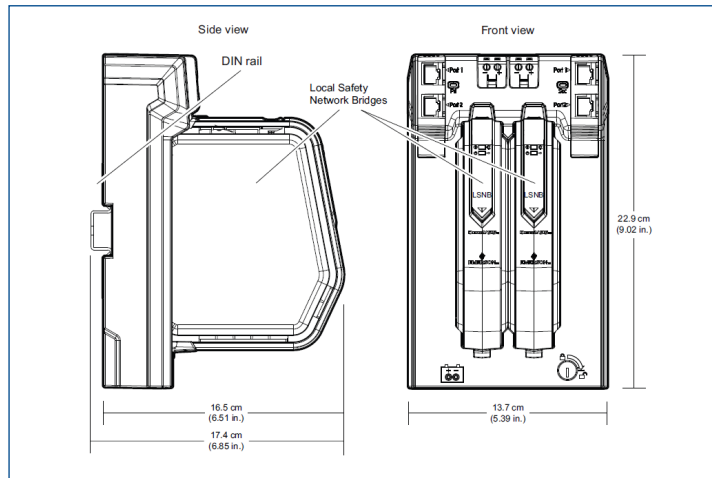


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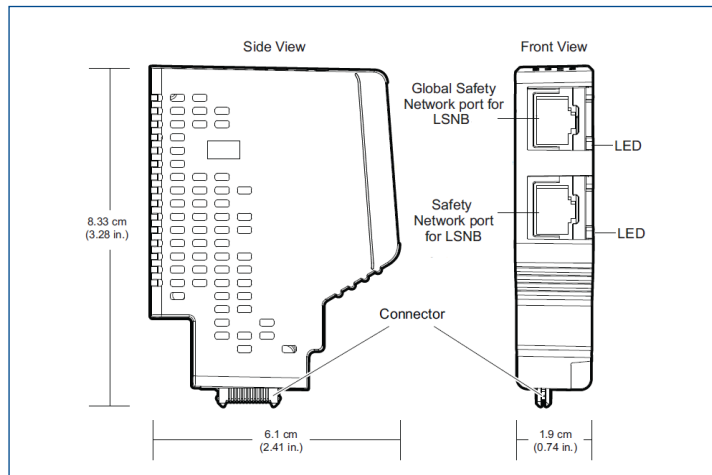
Beginning with DeltaV v13, a LSNB can be installed on two or more LSNs, so multiple LSNs may be connected over a GSN.

LSNB's require no configuration to function on the safety networks.

DeltaV SIS NextGen Smart Switches and the legacy DeltaV SIS Smart Switches are the only supported switches to be used within the LSN and GSN.



LSNB shown on Dual Horizontal Safety Carrier.



LSNB Ethernet Isolation Port.

LSNB Specifications

Hardware

Specifications for Dual Horizontal Safety Carrier	
Capacity	Redundant LSNBs
Input power	+24 V DC \pm 10% at 1 A maximum
Battery power	+5.0 to +12.6 V DC at 30 μ A typical
Redundant Ethernet connections through replaceable Ethernet Isolation Ports (EIPs)	Copper twisted pair: 10/100BASE-TX with RJ45 connectors; Full duplex operation - 100 m distance
Mounting	DIN rail latch to horizontally orientated T-type rail
Specifications for LSNB	
Number of GSNs per system	One GSN per system. Up to 16 LSNBs per domain can publish information to the GSN. There is no limit for the number of LSNBs subscribing to information from the GSN.
Input power	+24 V DC \pm 10% at 575 mA maximum for redundant
Heat dissipation (redundant)	13 Watts maximum for redundant
Mounting	Slots on the Dual Horizontal Safety Carrier
Communication	Redundant Ethernet connections through Dual Horizontal Safety Carrier to the: <ul style="list-style-type: none"> a) LSN b) GSN
LED Indicators	
Green – Power	Indicates DC power is applied.
Red – Error	Indicates an error condition or unassigned LSNB.
Green – Active/Standby	Indicates operating mode of each LSNB.


LSNB Certifications

The following certifications are available for the LSNB:

- **CE:**
 - EMC- EN 61326-1
- **FM:**
 - FM 3600
 - FM 3611
 - FM 3810
- **CSA:**
 - CSA C22.2 No. 213-M1987
 - CSA C22.2 No. 1010-1
- **ATEX:**
 - ATEX 94/9/EC
 - EN60079-0
 - EN60079-15
- **IEC-Ex:**
 - EN60079-0
 - EN60079-15
- **Marine Certifications:**
 - IACS E10
 - ABS Certificate of Design Assessment
 - DNV-GL Marine Certificate

Hazardous Area/Location

The LSNB can be installed and used based on the following Standards:

- **FM (USA):**
 - Class I, Division 2, Groups A, B, C, D, T4
- **cFM (Canada):**
 - Class I, Division 2, Groups A, B, C, D, T4
- **ATEX:**
 -  Ex nA IIC T4 Gc
- **IEC-Ex:**
 - Ex nA IIC T4 Gc

System Compatibility

DeltaV SIS LSN requires:

- v12.3 DeltaV SIS or later software
- SZ Controllers
- CSLSs
- Only DeltaV SIS NextGen Smart Switches and the legacy DeltaV SIS Smart Switches are allowed to be used in the LSN.









DeltaV SIS GSN requires:



- v13.3 DeltaV SIS or later software for a single GSN domain, v14.LTS or later is required for multiple GSN domains
- LSNBs
- GSN requires DeltaV SIS NextGen Smart Switches or the legacy DeltaV SIS Smart Switches with software release 4.2.14 or greater.

DeltaV Smart switches (non-SIS) cannot be used for LSN or GSN communication since the configuration of these switches will interfere with the proper operation of the LSN and GSN and block LSN/GSN communications. When connecting a SZ controller with more than one CSLS, it is always required to use a DeltaV SIS Smart Switch.

When mounting the CSLS in a hazardous area field enclosure where a fiber to copper converter is required, the standard VE6060 and VE6061 DeltaV Media Converters should be used. These Media Converters are certified for installation in hazardous areas up to a classification of Zone 2 or Class 1 Div 2 and are supported for hazardous area field enclosures for the LSN and GSN. For more information about DeltaV media converter, consult the Product Data Sheet **DeltaV Media Converters**.

Ordering Information

DeltaV SIS NextGen Smart Switches	Model Number
The modules with SS# ending in C2 are extended spec versions of the switches and must be used where high temperature or conformal coating is required	
8 ports – all copper DeltaV Safety Switch 8x 10/100BASE-TX RJ45 ports (LSN40-8TX) Power consumption 6 W Power output in BTU (IT) h 20	SS6071F01C1 SS6071F01C2 
10 ports – 8 copper – 2 100MB Multi-Mode fiber DeltaV Safety Switch 8x10/100BASE-TX RJ45 ports, 2xMM SC Ports (LSN40-8TX2MM) Current consumption at 24 V DC 321mA Power output in Btu (IT) h 26.3	SS6071F04C1 SS6071F04C2 
10 ports – 8 copper – 2 100MB Single-Mode fiber DeltaV Safety Switch 8x10/100BASE-TX RJ45 ports, 2xSM SC Ports (LSN40-8TX2SM) Power consumption 8 W Power output in BTU (IT) h 27	SS6071F05C1 SS6071F05C2 
12-ports switch – 8 10/100 Mbps copper and four 100/1000 Mbps SFP fiber port DeltaV Safety Switch 8x10/100BASE-TX RJ45 ports, 4x100/1000 SFP Fiber Port (FP50-8TX4GSFP) Power consumption 9 W Power output in BTU (IT) h 31	SS6071F06C1 SS6071F06C2 
Smart 10-port Switch; DeltaV Safety Switch; 19-inch Rack mount modular model with 6x10/100BASE-TX RJ45 ports, 4x100/1000 Combo Ports, 2 Module Slots; Redundant PSU; North American Power Cord (SRM200-Base Module-RP) Power requirements Power Output in BTU (IT) h: 26,9 (without media modules) Power Consumption: 7,3 W (without media modules) Weight: 3.60Kg (without media modules))	SS6073R2P1 
Smart 10-port Switch; Australian Power Cord	SS6073R2P4
Smart 10-port Switch; European Power Cord	SS6073R2P3
Smart 0-port Switch; United Kingdom Power Cord	SS6073R2P2
8-port Expansion Module for NextGen DeltaV SIS Smart Switches; DeltaV Safety Switch Module with 8 x 10/100 Mbit RJ45 ports (SRM200-EM-8TX). See specifications in table below. Module is hot swappable	SS6074M01 
8-port Expansion Module for NextGen DeltaV Safety Switch Module with 8 x 100BASE-FX Multimode SC transceiver ports (SRM200-EM-8MM-FX). See specifications in table below. Module is hot swappable	SS6074M02 
8-port Expansion Module for NextGen DeltaV Safety Switch Module with 8 x 100BASE-FX Singlemode SC transceiver ports (SRM200-EM-8SM-FX). See specifications in table below. Module is hot swappable	SS6074M03 

<p>8-port Expansion Module for NextGen DeltaV Safety Switch Module with 8 x 100BASE-FX SFP ports (SRM200-EM-8SFP). See specifications in table below. Module is hot swappable and SPF transceivers can be installed and removed under power.</p>	<p>SS6074M04</p> 
<p>Smart Switch Security Plugs and Key; Package of 10 plugs and 1 key <i>Note: DeltaV SIS Smart Switches come with plugs and the required tool. Additional plugs can be ordered using this model number. All unused ports shall be blocked with the port plugs.</i></p>	<p>SS6049</p> 

The DeltaV SIS NextGen Smart Switches are black channel components, which means, that parts of the communication channel are not designed or validated according to the IEC 61508 standard. In this case, the measures necessary to ensure the failure performance of the communication process are implemented in the DeltaV SIS elements that interface with the communication channel.

Emerson is in the process of having the DeltaV SIS NextGen Smart Switches included in the TUV certified component list for DeltaV SIS with Electronic Marshalling as an interference free hardware component (black channel component). This product datasheet will be updated once the TUV certified component list has been updated.

Fiberoptic SFP Transceivers for Use in DeltaV SIS Smart Switches:

The Gigabit transceivers can be used only in the Gigabit ports of SS6073 switches.






The 100Mb transceivers can be used in the Uplink ports of the SS6073 switch and the SS6074 SFP expansion module of the SS6073.




All Transceivers except the VE6050T01 are compatible with the Extended Spec DeltaV SIS switches and can also be used in the standard spec DeltaV SIS switches as well.

Power Consumption for all Transceivers: Operating voltage power supply through the switch

- Power consumption 1 W
- Weight 40 g

DeltaV SIS Smart Switches must use the transceivers below. The switches are not compatible with other brands of transceivers. Cisco transceivers are not compatible with DeltaV Smart Switches.

Description	Model Number
<p>Transceiver for DeltaV SIS Smart Switches: 1 Gigabit Ethernet; Single Mode Long Haul, for up to 120 Kilometers of fiberoptic cable (M-SFP-LH+/LC) [This SFP Module is not compatible with Extended Spec usage—not available with extended temperature specifications]</p>	<p>VE6050T01 <i>Gigabit</i></p> 
<p>Transceiver for DeltaV SIS Smart Switches; 1 Gigabit Ethernet; Single Mode Long Haul, for up to 80 Kilometers of fiberoptic cable (M-SFP-LH/LC-EEC) Extended Specs</p>	<p>VE6050T02 <i>Gigabit</i></p> 
<p>Transceiver for DeltaV SIS Smart Switches; 1 Gigabit Ethernet; Single Mode, for up to 20 Kilometers of fiberoptic cable (M-SFP-LX/LC EEC) Extended Specs</p>	<p>VE6050T03 <i>Gigabit</i></p> 
<p>Transceiver for DeltaV SIS Smart Switches; 1 Gigabit Ethernet; Multi-mode, for up to 550 meters of fiberoptic cable (M-SFP-SX/LC EEC) Extended Specs</p>	<p>VE6050T07 <i>Gigabit</i></p> 
<p>Transceiver for DeltaV SIS Smart Switches; 100 Megabit Ethernet, Single Mode, for up to 100 Kilometers of fiberoptic cable (M-FAST SFP-LH/LC-EEC) Extended Specs</p>	<p>VE6050T04</p> 

Transceiver for DeltaV SIS Smart Switches; 100 Megabit Ethernet; Single Mode, for up to 65 Kilometers of fiberoptic cable (M-FAST SFP-SM+/LC-EEC) Extended Specs	VE6050T05	
Transceiver for DeltaV SIS Smart Switches; 100 Megabit Ethernet; Single Mode, for up to 25 Kilometers of fiberoptic cable (M-FAST SFP-SM/LC-EEC) Extended Specs	VE6050T06	
Transceiver for DeltaV SIS Smart Switches; 100 Megabit Ethernet; Multi-Mode; for up to 5 Kilometers of fiberoptic cable (M-FAST SFP-MM/LC-EEC) Extended Specs	VE6050T08	

Ordering Information LSNB

Description	Model Number
Redundant LSNB Assembly (Includes 2 LSNBs, Dual Horizontal Safety Carrier, 2 Ethernet Isolation Ports for twisted cooper, 2 power plugs)	SS3101

Spare Part Ordering Information

Description	Model Number
Set of 2 Replacement Keys for Keylock Switch on SZ, CSLS, and Dual Vertical and Horizontal Safety Carrier	SS6201

Prerequisites

- DeltaV SIS Electronic Marshalling hardware requires DeltaV v12.3.x or later software.
- Only DeltaV SIS NextGen Smart Switches and the legacy DeltaV SIS Smart Switches are supported on both the LSN and GSN.
- GSN hardware requires DeltaV v13.3.x or later software.
- Multiple GSN domains requires DeltaV v14.LTS or later software.
- GSN requires DeltaV SIS NextGen Smart Switches or the legacy DeltaV SIS Smart Switches with software release 4.2.14 or greater.

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