

FLC-2528G-4XF-I-T | Industrial Modular Rack Mount Gigabit Switch



FEATURE HIGHLIGHTS

- Maximum 128Gbps switching capacity, 95.24Mpps throughput
- Rugged industrial design for -40~75° C harsh environment
- Flexible modular configuration, 3 module-dedicated slots
- IEC61850-3 and IEEE 1613 DNV.GL
- Up to 24 Gigabit ports and 4x10G Gigabit SFP, 1PPS BNC
- ITU-T G.8032 ERPS Ring, RSTP, or MRP (Manager/Client) redundancy
- Advanced management features such as QoS and VLAN
- Built-in MMS server for power station SCADA

DESCRIPTION

Sbjlink's high-density FLC-2528G managed rack mount switch extend your network bandwidth by the flexibility of its hardware configurations. You will be able to choose among 3 different core switch versions based on power supply and 3 different modules to customize your device in a very simple way.

FLC-2528G is IEC61850-3 and IEEE 1613 certified. It has fanless design and EMC Level 3 protection guarantee reliable operations between -40 and +75°C, perfect especially for power & utilities applications.

FLC-2528G supports ITU-T G.8032 ERPS Ring, IEEE802.1D-2004, RSTP, STP, MSTP, MRP (Client) and many compatible rings protocols for network redundancy. It provides network redundant self-recovery mechanism less than 20ms. With a Multifunctional web dashboard, its offers intelligent features such as Quality of service (QoS), IGMP, Port mirroring and security.

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CONFIGURATIONS



FLC-2528G-4XF-I-T-X1

Main unit, with 4 x 10 Gigabit SFP uplink slots and redundant AC power input



FLC-M-2528G-M1-X1

8-port 10/100/1000 RJ45 module



FLC-M-2528G-M2-X1

8-port 100/1000 SFP module



FLC-M-2528G-M5-X1

4 port 100/1000 SFP module



24 ports and 4 1/10 Gbe SFP uplink Layer-2 Managed Switch, with the optional modules

SPECIFICATIONS

Core Switch

Switch Properties

Priority Queues	8
VLAN Table	512
MAC-Based VLAN	512
VLAN ID Range	VID 1 to 4094
Trunk Group	8
Static IGMP Groups	128
Dynamic IGMP Groups	256
Mac Table Size	16k
Packet Buffer Size	1.5 MB
Jumbo Frame	9216 Byte
Switching Fabric Capacity	128 Gbps
Maximum throughput	95.24 Mpps

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SPECIFICATIONS

Ethernet

Standards	IEEE 802.3 for 10BaseT
	IEEE 802.3u for 100BaseT(X)/FX
	IEEE 802.3ab for 1000BaseT(X)
	IEEE 802.3z for 1000BaseX
	IEEE 802.3ae for 10 Gigabit Ethernet Fiber
	IEEE 802.3x for Flow Control, back pressure flow control
	IEEE 802.1D-2004 for Spanning Tree Protocol
	IEEE 802.1s for Multiple Spanning Tree Protocol
	IEEE 802.1Q for VLAN Tagging
	IEEE 802.1p for Class of Service
	IEEE 802.1X for Authentication
	IEEE 802.1AB for LLDP
	IEEE 802.1Q for VLAN
	IEC-62439-3 Clause 4 PRP (Parallel Redundancy Protocol)
	IEEE1588v2 PTP (Hardware-based) - (-SB version only)
	ITU-T G.8261 Synchronous Ethernet
Protocols	IPv4, IPv6, IGMPv1/v2/v3, GMRP, GVRP, SNMPv1/v2c/v3, SNMP Inform, ICMP,
	Telnet, SSH, DHCP Server/Relay/Client, DHCP Option 66/67/82, BootP, TFTP, NTP
Redundancy	Server/Client, SNTP, SMTP, RMON, HTTP, HTTPS, Telnet, Syslog, MRP (Manager/Client), ERPS, LLDP, IEEE 1588 PTP V2(Hw-based), 802.1x, RADIUS, TACACS+, SyncE, HSR, PRP, Voice VLAN, sFlow
	IEC62439-3 Clause 5 High-Avail-Seamless-Redundancy(HSR) only RHG9X28-M5/6
Automation Profiles	IEC62439-3 Clause 4 Parallel-Redundancy-Protocol (PRP) - only with RHG9X28-M5/6
	ITU-T G.8032 ERPS, STP, RSTP, MSTP, MRP (Manager/Client), Compatible Ring/Chain, U-Ring
MIB	Modbus TCP
Power station	MIB II, IF-MIB, SNMPv2 MIB, BRIDGE-MIB, RMON MIB Group 1,2,3,9
	MMS

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SPECIFICATIONS

Ethernet

Time Synchronization	Network Time	NTP Server/Client, SNTP	
	Precision Time Protocol	Std Version	IEEE1588v1 BC (SW) IEEE1588v2 BC (SW) IEEE1588v2 TC (HW)-ns accuracy
		PTP (-SB) Version	IEEE1588v2 BC (HW)-ns accuracy IEEE1588v2 TC (HW)-ns accuracy Synchronous Ethernet
	Holdover Accuracy	Boundary Clock/ SyncE (-SB)	<30 ns/s (IEEE61850-9-3 compliant)
	PTP Mode (all versions)	Layer-2: Multicast, E2E/P2P, two-steps Layer-3 (IPv4):Multicast,Unicast,Unicast Neg. (E2E/P2P)	
	Supported Profiles (-SB version)	C37.238 -2017 Power Profile IEC/ IEEE61850-9-3 Power Profile(2016)	

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SPECIFICATIONS

Power

Rated Supply Voltage	DC version: redundant 24-120 VDC AC version: redundant 100-240 VAC HV version: redundant 120-380 VDC
Input Voltage	DC version: redundant 19-132 VDC AC version: redundant 90-264 VAC HV version: redundant 120-380 VDC
Input Current (Max)	2.66A Max, 64W Max (For DC version models) 0.7A Max, 50/60Hz (For AC version models) 0.52A Max, 62W Max (For HVDC version models)
Power	< 70W (85°C)
Relay Output	1 Relay Output (24V/1A)
Connectors	AC: Barrier Terminal Block 4pin 9.52mm DC: Barrier Terminal Block 3Pin 13mm
Reverse Polarity Protection	Yes

Physical Characteristics

Housing	IP30 SPCC metal housing
Dimension (W x H x D) Weight	440 x 44 x 355 mm (not including screws and rack-mount kit)
Weight	5Kg (not including module but module cover only)
Installation	1U Rack-mount, Rack-mount kit included

Environmental Limits

Operating Temperature	-40°C~75°C (-40°F~167°F)
Storage Temperature	-40°C~85°C (-40°F~185°F)
Ambient Relative Humidity	5%~95%, 55°C (Non-condensing)

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MODULES



FLC-M-2528G-M1-X1

FLC-M-2528G-M2-X1

FLC-M-2528G-M3-X1

FLC-M-2528G-4-X1

Properties

Port speed	10/100/1000Mbps	100/1000Mbps	10/100/1000Mbps	100/1000Mbps
Interface	RJ45	SFP Slot	RJ45	SFP Slot
HW PTP IEEE1588v2	TC/BC (with -BC core) SyncE (with -SB core)	TC/BC (with -BC core) SyncE (with -SB core)	TC/BC (with -BC core) SyncE (with -SB core)	TC/BC (with -BC core) SyncE (with -SB core)
HSR PRP	NA	NA	Yes, Terminal Block	Yes, Terminal Block
Dimensions	102 x 120 x 42mm	102 x 120 x 42mm	102 x 120 x 42mm	102 x 120 x 42mm
Weight	550 g	500 g	550 g	500g
Fixing	2 x screws (included)	2 x screws (included)	2 x screws (included)	2 x screws (included)



FLC-M-2528G-M5-X1

FLC-M-2528G-M6-X1

Properties

Port speed	10/100/1000Mbps	100/1000Mbps
Interface	RJ45	SFP Slot
HW PTP IEEE1588v2	TC/BC (with -BC core)	TC/BC (with -BC core)
IRIG-B	2 Groups	2 Groups
Dimensions	102 x 120 x 42mm	102 x 120 x 42mm
Weight	550 g	500 g
Fixing	2 x screws (included)	2 x screws (included)

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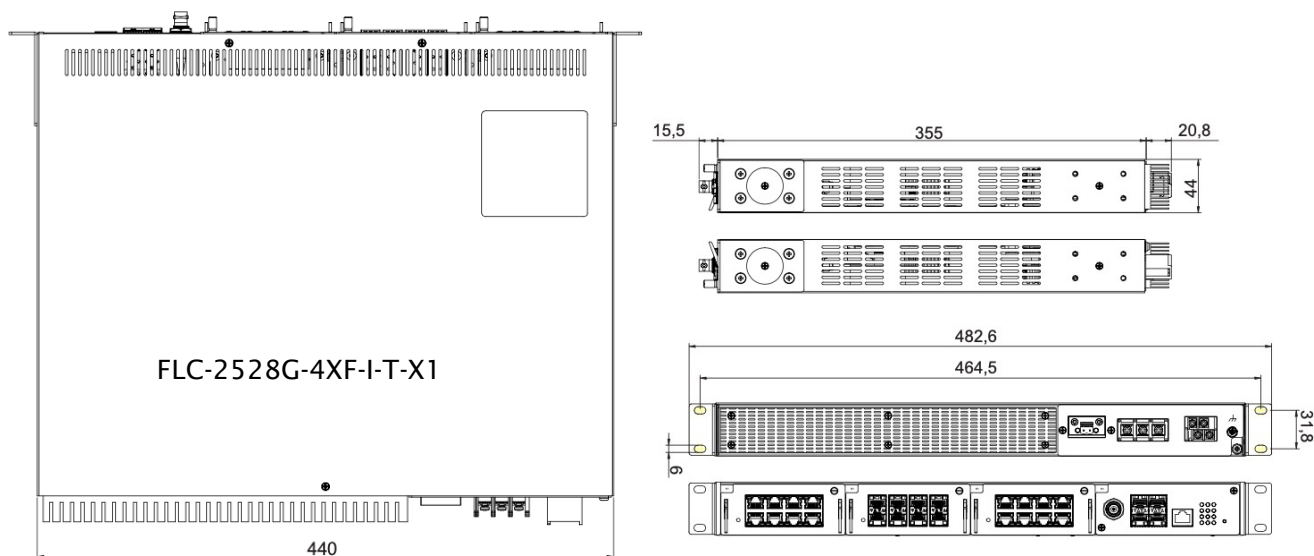
SPECIFICATIONS

Regulatory Approvals

CE	CE compliant			
IEC61850	IEC61850-3 compliant			
Green	RoHS			
Test	Item		Value	Level
IEX61000-4-2	ESD	Contact Discharge	±8KV	4
		Air Discharge	±15KV	4
IEC 61000-4-3	RS	Enclosure Port	10(V/m), 80-1000MHz, 80% AM, 1~3GHz	3
IEC 61000-4-4	EFT	AC Power Port	±4.0KV@5.0kHz	4
		DC Power Port	±4.0KV@5.0kHz	4
		Signal Port	±4.0KV@5.0kHz	4
IEC 61000-4-5	Surge	AC Power Port	Line-to Line±2.0KV	4
		AC Power Port	Line-to Earth±4.0KV	4
		DC Power Port	Line-to Line±1.0KV	3
		DC Power Port	Line-to Earth±2.0KV	3
		Signal Port	Line-to Earth±4.0KV	4
IEC 61000-4-6	CS	AC Power Port	10V rms 0.15-80MHz, 80% AM	3
		DC Power Port	10V rms 0.15-80MHz, 80% AM	3
		Signal Port	10V rms 0.15-80MHz, 80% AM	3
IEC 61000-4-8	PFMF	(Enclosure)	100A/m continuous, 1000A/m (1 s)	5
IEC 61000-4-11	DIP	AC Power Port	Drop 70% 3 times/s (1period) Drop 40% 3 times/1ms (50 period) Drop 100% 3 times/50m(5-50per.)	-
IEC 61000-4-16	Main Frequency	DC Input / Output	30V continuous, / 300V 1S	4
		Signal Port	30V continuous, / 300V 1S	4
IEC 61000-4-17	Ripple	DC Input / Output	10% of unit (10% Level3)	3
IEC 61000-4-18	Damped Oscillatory	AC Power Port	Line-to-Line ±1.0KV	3
			Line-to-Earth ±2.5KV	3
		DC Power Port	Line-to-Line ±1.0KV	3
			Line-to-Earth ±2.5KV	3
		Signal Port	Line-to-Earth ±2.5KV	3
IEC 61000-4-29	DC Input Port	Dips and Interrup-tions	30% Reduction: 0.1 sec	N/A
			60% Reduction: 0.1 sec	N/A
			100% Reduction: 0.05 sec	N/A
Shock	MIL-STD-810G Method 516.7 (2014)			
Drop	MIL-STD-810F Method 516.7 (2014)			
Vibration	MIL-STD-810F Method 514.5 C-1 & C-2			
Rail Traffic	EN50155 / EN50121-4 Certified			
RoHS2	Yes			
MTBF	20 Years			
Warranty	5 years			

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DIMENSIONS



FLC-M-2528G-M1-X1

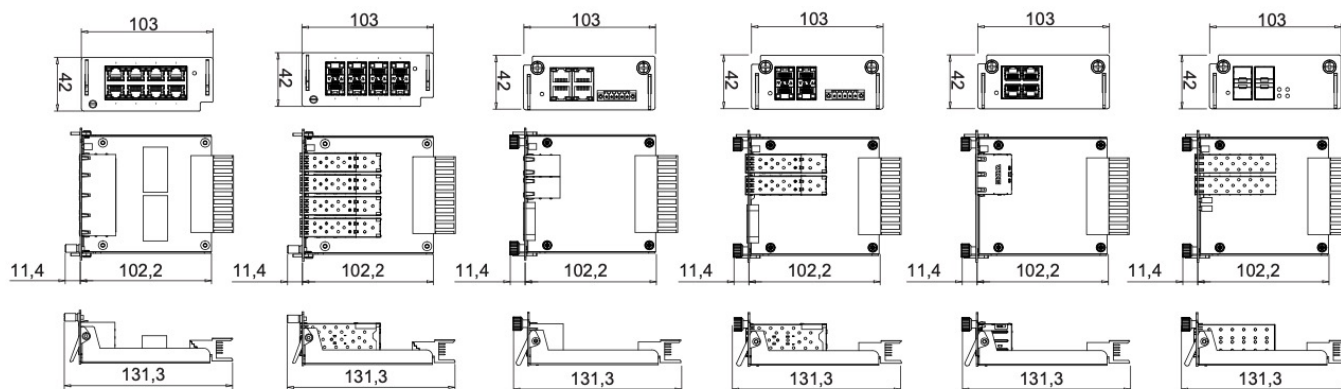
FLC-M-2528G-M2-X1

FLC-M-2528G-M3-X1

FLC-M-2528G-M4-X1

FLC-M-2528G-M5-X1

FLC-M-2528G-M6-X1



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Ordering information

Core Switch

Model Name	Slots	Uplink ports	Power supply
FLC-2528G-4XF-I-2A-T-X1	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 90~264 VAC
FLC-2528G-4XF-I-2D-T-X1	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 24~120 VDC
FLC-2528G-4XF-I-2H-T-X1	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 120~370 VDC
FLC-2528G-4XF-I-2A-T-X1	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 90~264 VAC
FLC-2528G-4XF-I-SB-2A-T-X1 (HW PTP)	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 90~264 VAC
FLC-2528G-4XF-I-SB-2D-T-X1 (HW PTP)	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 24~120 VDC
FLC-2528G-4XF-I-SB-2H-T-X1 (HW PTP)	3	① 4 x 10 Gb SFP / 4 x 1Gb SFP	② 2x 120~370 VDC

① Software selectable

② The power supply in bold is for core switch

Modules (Optional)

Model Name	Description
FLC-M-2528G-M1-X1	8-port 10/100/1000 RJ45 module
FLC-M-2528G-M2-X1	8-port 100/1000 SFP module
FLC-M-2528G-M3-X1	4-port 10/100/1000 RJ45 module with IRIG-B
FLC-M-2528G-M4-X1	4-port 100/1000 SFP module with IRIG-B
FLC-M-2528G-M5-X1	HSR/PRP module, 4x 10/100/1000 RJ45 (for 2 separate HSR/PRP networks), IEEE1588 PTP
FLC-M-2528G-M6-X1	HSR/PRP module, 4x 100/1000 SFP slots (for 2 separate HSR/PRP networks), IEEE1588 PTP