SICOM3028GPT

28 port layer 2/3 managed rack mountable modular switches

Overview

SICOM3028GPT is a intelligent modular platform which is an All-in-One solution integrating IEEE1588v2, Sync-E, full gigabit, and both layer 2 & Layer 3 availability specifically designed to operate reliably in electrically harsh and climatically demanding utility substation and industrial environments. SICOM3028GPT supports up to 28 gigabit fiber/copper ports, meets the IEC61850 and IEEE1613 standards. SICOM3028GPT is a 19-inch 1U rack mountable device and supports one 1U slot and six 0.5U slots which offers the maximum flexibility for easy expansion.SICOM3028GPT supports IEEE1588v2 and synchronous Ethernet protocol with hardware time stamping and supports the BC, P2P TC, and E2E TC clock modes, it reaches a timing precision of 100 ns. It supports Power Profile and Telecom Profile, and supports many modules for time synchronous like HSR/PRP, TimeServer, GPS, IRIG-B and TMS-trigger etc. SICOM3028GPT supports many Layer 2 software features such as port, VLAN, multicast, QoS, fast redundant ring and Layer 3 functions such as VRRP, RIP, OSFP, IGMP and PIM. It supports Console, Telnet, Web management and network management software based on SNMP. By expanding the serial server module, the product can provide up to 24 RS232/422/485 serial ports. At present, the product is widely used at the intelligent substation and many other industrial communication systems.

Key Features

Flexible modular design for easy expansion, supports max 28 gigabit fiber/copper ports.

Supports DT-Ring ,DRP, MSTP and VRRP for network redundancy.

Supports Layer 3 routing protocols such as RIP and OSPF.

Supports IEEE1588v2 and the synchronization precision reaches ±100 ns, with SW based PTP 1588 and optional HW based PTP 1588.

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Supports ITU-T.G.8261/G.8262 synchronous Ethernet and the synchronization precision reaches ±50 ns.

Supports HSR/PRP module, TimeServer module, GPS module, IRIG-B module, TMS-trigger module, Serial server module.

Supports Hot-Swappable Power Supplies.

Supports IEC61850 MMS management.

Supports cable test.

Complies with IEC61850-3 and IEEE1613.

KEMA, CE, FCC, EN50155/EN50121, NEMA-TS2.

Product Specifications

>Software functions

-Switching function

Supports VLAN and PVLAN.

Supports GVRP

Supports port aggregation and LACP.

Supports flow control.

Supports broadcast storm suppression.

Supports QinQ

Supports MAC address management

-Redundancy protocol

Supports DHP and DRP and the recovery time<20 ms.

Supports DT-Ring, DT-Ring+, and DT-VLAN and the recovery time<50 ms.

Supports RSTP/MSTP and compatible with STP.

-Multicast protocol

Supports IGMP snooping.

Supports GMRP.

Supports static multicast.

Supports GOOSE over IP tunnel (receiver)(Web interface doesn't support)

-L3 function (part of sub-models support)

Supports ARP proxy

Supports RIPv1/v2.

Supports OSFPv2.

Supports static routing.

Supports VRRP.

Supports IGMP

Supports PIM SM，PIMDM

Supports GOOSE over IP tunnel (sender) (Web interface doesn't support)

-Security

Supports IEEE 802.1x.

Supports HTTPS/SSL.

Supports SSH.

Supports SFTP client.

Supports RADIUS.

Supports TACACS+.

Supports user grading.

Supports MAC address binding.

Supports port isolate.

Supports security IP for Web/Telnet/SSH/SNMP service

-Service quality management

Supports ACL

Supports 802.1p(CoS),DSCP

Supports priority mapping.

Supports SP and WRR queuing.

-Management and maintenance

Supports Console, Telnet, and Web（HTTP or HTTPs） management methods.

Supports SNMPv1/v2c/v3 and can managed by Kyvision.

Supports IEC61850 MMS management.

Supports TFTP server/client.

Supports FTP server/client.

Supports file transfer and software update over FTP and TFTP.

Supports the IP/MAC address conflict alarm, power failure alarm, power alarm, temperature alarm, port linkdown alarm, port traffic alarm, CRC and packet lose alarm, CPU alarm, memory alarm, Sfp port rx power alarm, transceiver alarm and ring alarm (Web interface doesn’ t support address

conflict alarm. Sfp port rx power alarm, transceiver alarm need supported by hardware).

Supports port mirroring.

Supports cable test.

Supports DDM.

Supports loop detection

Supports CRC protection

Supports Syslog.

Supports RMON

Supports LLDP.

Supports Link-check.

Supports NTP and SNTP.

Supports RTC.

Supports timezone and DST.

-IP address management

Supports Bootp.

Supports DHCP server/client.

Supports Up to 16 different IP addresses and VLAN for system management

-Time synchronization (part of sub-models support)

Supports PTPv2 (IEEE1588-2008).

Supports Power profile (C37.238).

Supports Telecom profile (in special version).

Supports synchronous Ethernet (ITU-T.G.8261/G.8262).

Supports TMS function.

>Product Specifications

-Standard

IEEE 802.3i (10Base-T)

IEEE 802.3u (100Base-T)

IEEE 802.3ab (1000Base-T)

IEEE 802.3ad (port aggregation)

IEEE 802.3z (1000Base-SX/LX)

IEEE 802.3x (flow control)

IEEE 802.1p (priority)

IEEE 802.1Q (VLAN)

IEEE 802.1w (RSTP)

IEEE 802.1s (MSTP)

IEEE 802.1x

IEEE1588-2008 (PTPv2)

ITU-T.G.8261/G.8262 (synchronous Ethernet)

-Switch properties

Priority queue: 8

Number of VLANs: 4K

VLAN ID: 1–4093

Number of multicast groups: 256

Routing table: 8K (L2 chassis do not involve)

MAC table: 16K

Packet buffer: 12Mbit (SICOM3028GPT-L3F/L3FT/L3G/L3GT), 8Mbit (SICOM3028GPT-L2F/L2FT/L2G/L2GT)

Packet forwarding rate: 41.7Mpps (SICOM3028GPT-L2G/L2GT/L3G/L3GT), 9.5Mpps (SICOM3028GPT-L2F/L2FT/L3F/L3FT)

Switching delay: < 10 μs

Jumbo Frame Size: 10 KB

-Interface

Console port: Mini USB, RJ45

Alarm contact: 3-pin 5.08mm-spacing plug-in terminal block, 250 VAC/220 VDC Max, 2 A Max, 10A@1s, 60 W Max

Slots for module: 1U: 1, 0.5U: 6

-LED

LED on front panel

Alarm LED: Alarm

Running LED: Run

Ring Role LED: Ring

Synchronization finish LED: Lock

Power LED: PWR1, PWR2

Port LED: Link/ACT

Port speed LED: Speed

LED on rear panel

Port LED: Link/ACT

Port speed LED: Speed

-Power Requirements

Power input:

24VDC (18-36 VDC)

48VDC (36-72 VDC)

100-240VAC,50/60Hz;110-220VDC (85-264VAC/77-300VDC)

Power terminal: 5-pin 5.08 mm-spacing plug-in terminal block

Power consumption: < 40 W

Overload protection: Support

Reverse connection protection: Support

Redundancy protection: Support

Hot Swappable: Support

-Physical Characteristics

Housing: Metal

Cooling: Natural cooling, fanless

Protection Class: IP40

Dimensions(W×H×D)： 482.6 mm × 44 mm × 359.7 mm

Weight: < 10 Kg

Mounting: 19 inch 1U rack mounting

-Environmental limits

Operating temperature: -40°C to +85°C

Storage temperature: -40°C to +85°C

Ambient Relative Humidity: 5% to 95% (non-condensing)

-Quality assurance

MTBF:

360000h (SICOM3028GPT-L2F/L2G)

359000h (SICOM3028GPT-L2FT/L2GT)

371000h (SICOM3028GPT-L3F/L3G)

368000h (SICOM3028GPT-L3FT/L3GT)

Warranty: 5 years

-Approvals

KEMA: Models with power supply of HV:100-240VAC,50/60Hz;110-220VDC

CE: All models

FCC: All models

EN50155/50121: Models with power supply of HV:100-240VAC,50/60Hz;110-220VDC

NEMA-TS2: Models with power supply of HV:100-240VAC,50/60Hz;110-220VDC

UL61010

IEC 60950-1, EN 60950-1

IEC 62368-1, EN 62368-1(Pending)

IEC 62439-3

-Industry standard

EMI

FCC CFR47 Part 15, EN55022/CISPR22, Class A

EMS

IEC61000-4-2(ESD) ±8 kV (contact), ±15 kV(air)

IEC61000-4-3(RS) 10 V/m (80 MHz-2 GHz)

IEC61000-4-4(EFT) Power Port: ±4 kV; Data Port: ±2 kV

IEC61000-4-5(Surge) Power Port: ±2 kV/DM, ±4 kV/CM; Data Port: ±2 kV

IEC61000-4-6(CS) 3 V (10 kHz-150 kHz); 10 V (150 kHz-80 MHz)

IEC61000-4-8 (power frequency magnetic field) 100 A/m(cont.), 1000 A/m(1s-3s)

IEC61000-4-9 (pulsed magnetic field) 1000 A/m

IEC61000-4-10 (damped oscillation) 100 A/m

IEC61000-4-12 (oscillatory wave) 2.5 kV/CM, 1 kV/DM

IEC61000-4-16 (common mode conduction) 30 V(cont.), 300 V(1s)

Machinery

IEC60068-2-6 (vibration)

IEC60068-2-27 (shock)

IEC60068-2-32 (free fall)

Climatic environmental

IEC60068-2-1 Cold test

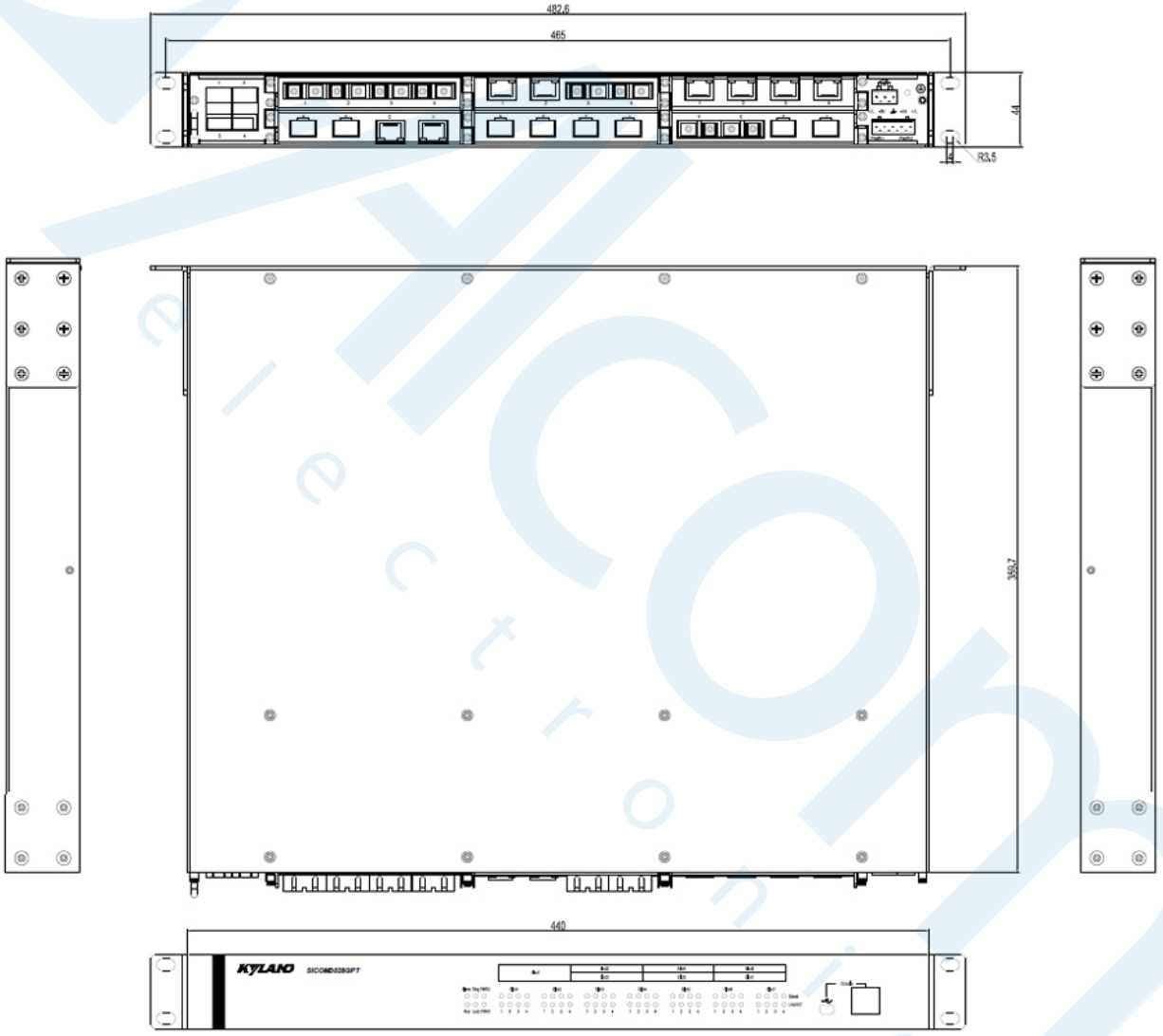
IEC60068-2-2 Dry heat test

IEC60068-2-14 Change of temperature test

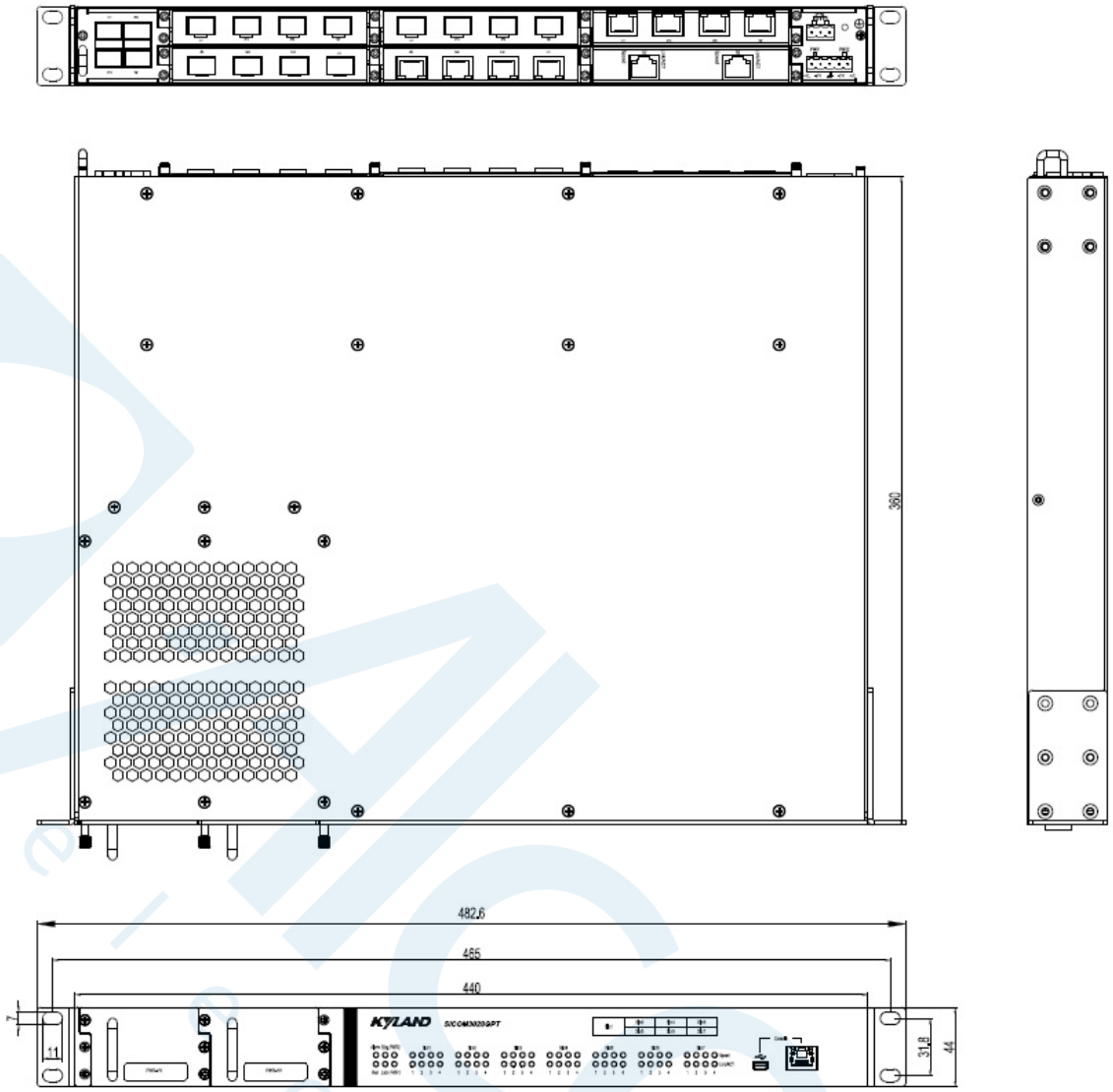
IEC60068-2-30 Damp heat cyclic test

IEC60068-2-78 Damp heat steady state test

Mechanical Drawing



Hot-Swappable:



Ordering Information

Product selection table

Sub-model	Ethernet Ports	L2 function	L3 function	Time synchronization
SICOM3028GPT-L2GT	Up to 28 Gigabit ports	●		●
SICOM3028GPT-L2G	Up to 28 Gigabit ports	●		
SICOM3028GPT-L2FT	Up to 4 Gigabit ports and 24 Fast Ethernet ports	●		●
SICOM3028GPT-L2F	Up to 4 Gigabit ports and 24 Fast Ethernet ports	●		

SICOM3028GPT-L3GT	Up to 28 Gigabit ports	●	●	●
SICOM3028GPT-L3G	Up to 28 Gigabit ports	●	●	
SICOM3028GPT-L3FT	Up to 4 Gigabit ports and 24 Fast Ethernet ports	●	●	●
SICOM3028GPT-L3F	Up to 4 Gigabit ports and 24 Fast Ethernet ports	●	●	

Ordering Information

Recommended model

Product Model	**SICOM3028GPT-SM-PS1-PS2**
Code definition	Code selection
SM: Sub-model	L2GT-MB: SICOM3028GPT 28G ports L2 Chassis with time synchronization L2G-MB: SICOM3028GPT 28G ports L2 Chassis L2FT-MB: SICOM3028GPT 24+4G ports L2 Chassis with time synchronization L2F-MB: SICOM3028GPT 24+4G ports L2 Chassis L3GT-MB: SICOM3028GPT 28G ports L3 Chassis with time synchronization L3G-MB: SICOM3028GPT 28G ports L3 Chassis L3FT-MB: SICOM3028GPT 24+4G ports L3 Chassis with time synchronization L3F-MB: SICOM3028GPT 24+4G ports L3 Chassis
PS1: power input 1	HV=100-240VAC,50/60Hz;110-220VDC(85-264VAC/77-300VDC) L1=48VDC(36-72VDC) L3=24VDC(18-36VDC)
PS2: power input 2	HV=100-240VAC,50/60Hz;110-220VDC(85-264VAC/77-300VDC) L1=48VDC(36-72VDC) L3=24VDC(18-36VDC) NA: no redundant power supply
Hot-Swappable Chassis	**SICOM3028GPT-SM**

SM: Sub-model	L2GT-MB: SICOM3028GPT 28G ports L2 Chassis with time synchronization L2G-MB: SICOM3028GPT 28G ports L2 Chassis L2FT-MB: SICOM3028GPT 24+4G ports L2 Chassis with time synchronization L2F-MB: SICOM3028GPT 24+4G ports L2 Chassis L3GT-MB: SICOM3028GPT 28G ports L3 Chassis with time synchronization L3G-MB: SICOM3028GPT 28G ports L3 Chassis L3FT-MB: SICOM3028GPT 24+4G ports L3 Chassis with time synchronization L3F-MB: SICOM3028GPT 24+4G ports L3 Chassis
Hot-Swappable Power Module	**SM6.6-Power-PS**
PS: power input	HV=100-240VAC,50/60Hz;110-220VDC(85-264VAC/77-300VDC), 1U L1=48VDC(36-72VDC), 1U L3=24VDC(18-36VDC), 1U
Slot 1:	**SM6.6-Ports-1U**
Ports:	4GX=4x1000Base-X, 10/100/1000Base-T(X) SFP port,1U 4GX-DDM=4x1000Base-X, 10/100/1000Base-T(X) SFP port, DDM, 1U 4GE=4x10/100/1000Base-T(X) RJ45 port, 1U 2GX2GE=2x1000Base-X, 10/100/1000Base-T(X) SFP port; 2x10/100/1000Base-T(X) RJ45 port, 1U
Slot2-Slot7:	**SM6.6-Ports-Connector-0.5U**
Ports:	4GX=4x1000Base-X, 100Base-FX, 10/100/1000Base-T(X) SFP port, 0.5U 4GX-DDM=4x1000Base-X, 100Base-FX, 10/100/1000Base-T(X) SFP port, DDM, 0.5U 4SFP=4x100Base-FX SFP port, 0.5U 4SFP-DDM=4x100Base-FX SFP port, DDM, 0.5U 4GE=4x10/100/1000Base-T(X) RJ45 port, 0.5U 2GX2GE=2x1000Base-X, 100Base-FX, 10/100/1000Base-T(X) SFP port; 2x10/100/1000Base-T(X) RJ45 port, 0.5U 2GX2S=2x1000Base-X, 100Base-FX, 10/100/1000Base-T(X) SFP port; 2x100Base-FX, single-mode fiber port, 0.5U 2GX2M=2x1000Base-X, 100Base-FX, 10/100/1000Base-T(X) SFP port; 2x100Base-FX, multi-mode fiber port, 0.5U 4S=4x100Base-FX, single-mode fiber port, 0.5U 4M=4x100Base-FX, multi-mode fiber port, 0.5U 2S2T=2x100Base-FX, single-mode fiber port; 2x10/100Base-T(X) RJ45 port, 0.5U 2M2T=2x100Base-FX, multi-mode fiber port; 2x10/100Base-T(X) RJ45 port, 0.5U 4T=4x10/100Base-T(X) RJ45 port, 0.5U

Connector: 100M fiber port specifications	SC05=SC connector, multi-mode, 1310nm, 5km ST05=ST connector, multi-mode, 1310nm, 5km FC05=FC connector, multi-mode, 1310nm, 5km SC40=SC connector, single-mode, 1310nm, 40km ST40=ST connector, single-mode, 1310nm, 40km FC40=FC connector, single-mode, 1310nm, 40km SC60=SC connector, single-mode, 1310nm, 60km SC80=SC connector, single-mode, 1550nm, 80km
Slot2-Slot7:	**Module**

	SM6.6-HSR/PRP-GE-0.5U = Redbox module, 2x100/1000Base-T RJ45 port **SM6.6-HSR/PRP-GX-0.5U** = Redbox module, 2x1000Base-X, 100Base-FX SFP port **SM6.6-PTP-BO-0.5U** = PTP-to-IRIG-B convertor module, 2 IRIG-B(AC) outputs, 2 IRIG-B(DC) outputs, 1 PPS output **SM6.6-GPS-OI-0.5U** = GPS clock synchronization module, 1 GPS antenna input, 1 PPS output **SM6.6-4D-232/422/485-0.5U** = serial port server module, 4 RS232/422/485 serial ports **SM6.6-4D-A-4RS232/422/485-0.5U** = enhanced serial port server module, 4 RS232/422/485 serial ports, supports flow control and optical/electrical isolation **SM6.6-TMS-Trigger-1U** = Time Management System trigger module, 1 IRIG-B output, 1 IRIG-B input, 2 channels for signal input, 2 channels for signal output, 1 Console port **SM6.6-TimeServer-ST850-1U** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,850nm; 1 Gigabit combo port; 1 console port; Web. **SM6.6-TimeServer-ST850-1U-S1** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,850nm; 1 Gigabit combo port; 1 console port; Web,SNMP **SM6.6-TimeServer-ST850-1U-S2** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,850nm; 1 Gigabit combo port; 1 console port; Web,DNP3.0,IEC60870-5-104 **SM6.6-TimeServer-ST850-1U-S3** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,850nm; 1 Gigabit combo port; 1 console port; Web,IEC61850 MMS,IEC60870-5-104 **SM6.6-TimeServer-ST850-1U-S4** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,850nm; 1 Gigabit combo port; 1 console port; Web,TMS,IEC61850 MMS,IEC60870-5-104 **SM6.6-TimeServer-ST1310-1U** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,1310nm; 1 Gigabit combo port; 1 console port; Web **SM6.6-TimeServer-ST1310-1U-S1** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,1310nm; 1 Gigabit combo port; 1 console port; Web ,SNMP **SM6.6-TimeServer-ST1310-1U-S2** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,1310nm; 1 Gigabit combo port; 1 console port; Web,DNP3.0,IEC60870-5-104 **SM6.6-TimeServer-ST1310-1U-S3** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,1310nm; 1 Gigabit combo port; 1 console port; Web,IEC61850 MMS,IEC60870-5-104 **SM6.6-TimeServer-ST1310-1U-S4** = TimeServer module, 1 satellite antenna input; 1 TTL output; 1 RS485 output; 1 optical input and 1 optical output,1310nm; 1 Gigabit combo port; 1 console port; Web,TMS,IEC61850 MMS,IEC60870-5-104

Module adaptive table

	SICOM3028GPT							
	L2GT	L2G	L2FT	L2F	L3GT	L3G	L3FT	L3F
SM6.6-HSR/PRP-GE-0.5U	√	√	√	√	√	√	√	√
SM6.6-HSR/PRP-GX-0.5U	√	√	√	√	√	√	√	√
SM6.6-PTP-BO-0.5U	√		√		√		√	
SM6.6-GPS-OI-0.5U	√		√		√		√	
SM6.6-TMS-Trigger-1U	√		√		√		√	
SM6.6-TimeServer-ST850-1U	√		√		√		√	
SM6.6-TimeServer-ST850-1U-S1	√		√		√		√	
SM6.6-TimeServer-ST850-1U-S2	√		√		√		√	
SM6.6-TimeServer-ST850-1U-S3	√		√		√		√	
SM6.6-TimeServer-ST850-1U-S4	√		√		√		√	
SM6.6-TimeServer-ST1310-1U	√		√		√		√	
SM6.6-TimeServer-ST1310-1U-S1	√		√		√		√	
SM6.6-TimeServer-ST1310-1U-S2	√		√		√		√	
SM6.6-TimeServer-ST1310-1U-S3	√		√		√		√	
SM6.6-TimeServer-ST1310-1U-S4	√		√		√		√	
SM6.6-4D-232/422/485-0.5U	√	√	√	√	√	√	√	√
SM6.6-4D-A-4RS232/422/485-0.5U	√	√	√	√	√	√	√	√
SM6.6-4GX-1U	√	√	√	√	√	√	√	√
SM6.6-4GX-DDM-1U	√	√	√	√	√	√	√	√
SM6.6-4GE-1U	√	√	√	√	√	√	√	√
SM6.6-2GX2GE-1U	√	√	√	√	√	√	√	√
SM6.6-4GX-0.5U	√	√			√	√		
SM6.6-4GX-DDM-0.5U	√	√			√	√		
SM6.6-4SFP-0.5U	√	√	√	√	√	√	√	√
SM6.6-4SFP-DDM-0.5U	√	√	√	√	√	√	√	√
SM6.6-4GE-0.5U	√	√			√	√		
SM6.6-2GX2GE-0.5U	√	√			√	√		
SM6.6-2GX2M-ST05-0.5U	√	√			√	√		
SM6.6-2GX2M-SC05-0.5U	√	√			√	√		
SM6.6-2GX2M-FC05-0.5U	√	√			√	√		
SM6.6-2GX2S-ST40-0.5U	√	√			√	√		
SM6.6-2GX2S-SC40-0.5U	√	√			√	√		
SM6.6-2GX2S-FC40-0.5U	√	√			√	√		
SM6.6-2GX2S-SC60-0.5U	√	√			√	√		
SM6.6-2GX2S-SC80-0.5U	√	√			√	√		
SM6.6-4M-ST05-0.5U	√	√	√	√	√	√	√	√
SM6.6-4M-SC05-0.5U	√	√	√	√	√	√	√	√
SM6.6-4M-FC05-0.5U	√	√	√	√	√	√	√	√
SM6.6-4S-ST40-0.5U	√	√	√	√	√	√	√	√
SM6.6-4S-SC40-0.5U	√	√	√	√	√	√	√	√

SM6.6-4S-FC40-0.5U	√	√	√	√	√	√	√	√
SM6.6-4S-SC60-0.5U	√	√	√	√	√	√	√	√
SM6.6-4S-SC80-0.5U	√	√	√	√	√	√	√	√
SM6.6-2M2T-ST05-0.5U	√	√	√	√	√	√	√	√
SM6.6-2M2T-SC05-0.5U	√	√	√	√	√	√	√	√
SM6.6-2M2T-FC05-0.5U	√	√	√	√	√	√	√	√
SM6.6-2S2T-ST40-0.5U	√	√	√	√	√	√	√	√
SM6.6-2S2T-SC40-0.5U	√	√	√	√	√	√	√	√
SM6.6-2S2T-FC40-0.5U	√	√	√	√	√	√	√	√
SM6.6-2S2T-SC60-0.5U	√	√	√	√	√	√	√	√
SM6.6-2S2T-SC80-0.5U	√	√	√	√	√	√	v	√
SM6.6-4T-0.5U	√	√	√	√	√	√	√	√

Accessories

Accessory Model	Description
Gigabit SFP module	See the selection table of industrial gigabit SFP module
100M SFP module	See the selection table of industrial 100M SFP module
DT-FCZ-RJ45-01	Single-port RJ45 dust plug
DT-XL- Mini USB-USB-2m	2m USB console cable
DT-ZJQ-BNC-TNC-01	BNC(female) to TNC(female) connector
DT-XL-LMR400-TNC-BNC-20m	20m coaxial cable with BNC(male) to TNC(male) adaptor
DT-XL-LMR400-TNC-BNC-2m	2m coaxial cable with BNC(male) to TNC(male) adaptor
DT-GPS-ANT-01	GPS antenna, 5 V DC power supply, 1 TNC connector(female)
DT-SP-01	GPS surge protection, TNC connector(male) – TNC connector(female)

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