

SICOM3028GPT

Preliminary



28 Port Layer 2/3 Managed Rack Mountable Modular Switches

- 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 IEEE 1588v2 and the synchronization precision reaches ± 100 ns, supports ITU-T.G.8261/G.8262 synchronous Ethernet and the synchronization precision reaches ± 50 ns.
- Supports GPS module, IRIG-B module, PTP over E1/T1 module, TMS-trigger module, serial server module and HSR/PRP module.
- Supports IEC 61850 MMS management.
- Supports cable test.
- IEC61850-3 & IEEE1613 (KEMA certified)
- CE, FCC, EN50155/50121



Overview

SICOM3028GPT is an intelligent modular platform which is an All-in-One solution integrating IEEE 1588v2, 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 IEC 61850 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 IEEE 1588v2 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 GPS and IRIG-B module 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, and OSPF. 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; by expanding the HSR/PRP module, the product can provide a zero-packet-loss redundancy solution. At present, the product is widely used at the intelligent substation and many other industrial communication systems.

Product Selection Table

Sub-model	Ports	L3 function	Time synchronization
SICOM3028GPT-L2GT	Up to 28 Gigabit ports	Do not support	Support
SICOM3028GPT-L2G	Up to 28 Gigabit ports	Do not support	Do not support
SICOM3028GPT-L2FT	Up to 4 Gigabit ports and 24 Fast Ethernet ports	Do not support	Support
SICOM3028GPT-L2F	Up to 4 Gigabit ports and 24 Fast Ethernet ports	Do not support	Do not support
SICOM3028GPT-L3GT	Up to 28 Gigabit ports	Support	Support
SICOM3028GPT-L3G	Up to 28 Gigabit ports	Support	Do not support
SICOM3028GPT-L3FT	Up to 4 Gigabit ports and 24 Fast Ethernet ports	Support	Support
SICOM3028GPT-L3F	Up to 4 Gigabit ports and 24 Fast Ethernet ports	Support	Do not support

» Software Functions

Switching Function

Supports VLAN and PVLAN.
Supports port aggregation.
Supports flow control.
Supports broadcast storm suppression.

Redundancy Protocol

Supports DT-Ring, DT-Ring+, and DT-VLAN and the recovery time < 50 ms.
Supports DHP and DRP and the recovery time < 20 ms.
Supports RSTP/MSTP and compatible with STP.

Multicast Protocol

Supports IGMP snooping.
Supports GMRP.
Supports static multicast.
Supports GOOSE over IP tunnel (receiver)

L3 Function (Supported by partial sub-models only)

Supports RIPv1/v2.
Supports OSPFv2.
Supports BGPv4 (special version supports).
Supports static routing.
Supports VRRP.
Supports GOOSE over IP tunnel (sender)

Security

Supports IEEE 802.1x.
Supports HTTPS/SSL.
Supports SSH.
Supports RADIUS.
Supports TACACS+.
Supports user grading.
Supports MAC address binding.
Supports port isolate.

Service Quality Management

Supports ACL (Web interface doesn't support).
Supports SP and WRR queuing.

Management & Maintenance

Supports Console, Telnet, and Web management methods.
Supports SNMPv1/v2c/v3 and can be managed by Kyvision.
Supports IEC 61850 MMS management.
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 alarm, and ring alarm (Web interface doesn't support address conflict alarm).
Supports port mirroring.
Supports cable test (Web interface doesn't support).
Supports Syslog.
Supports LLDP.
Supports Link-check.
Supports NTP and SNTP.
Supports RTC.

IP Address Management

Supports Bootp.
Supports DHCP server/client.

Clock Synchronization (Supported by partial sub-models only)

Supports PTPv2 (IEEE 1588-2008).
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

Technical 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
- ▼ IEEE 1588-2008 (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

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

- ▼ 24DC (18-36 VDC)
- ▼ 48DC (36-72 VDC)
- ▼ 220AC/DCW (85-264 VAC/77-300 VDC)

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

Physical Characteristics

Housing	Metal
Cooling	Natural cooling, fanless
Protection Class	IP40
Dimensions(WxHxD)	
▼ 482.6 mm × 44 mm × 359.7 mm	(19×1.73×14.16 in.)
Weight	< 10 Kg (22.046 pound)
Mounting	19 inch 1U rack mounting

Environmental Limits

Operating temperature	-40°C to +85°C (-40°F to 185°F)
Storage temperature	-40°C to +85°C (-40°F to 185°F)
Ambient Relative Humidity	5% to 95% (non-condensing)

Quality Assurance

MTBF

- ▼ 360,000 hrs (SICOM3028GPT-L2F/L2G)

- ▼ 359,000 hrs (SICOM3028GPT-L2FT/L2GT)
 - ▼ 371,000 hrs (SICOM3028GPT-L3F/L3G)
 - ▼ 368,000 hrs (SICOM3028GPT-L3FT/L3GT)
- Warranty 5 years

Approvals

- ▼ KEMA(pending), CE, FCC, EN50155/50121
- ▼ Please check Kyland website for the latest updates.

Industry standard

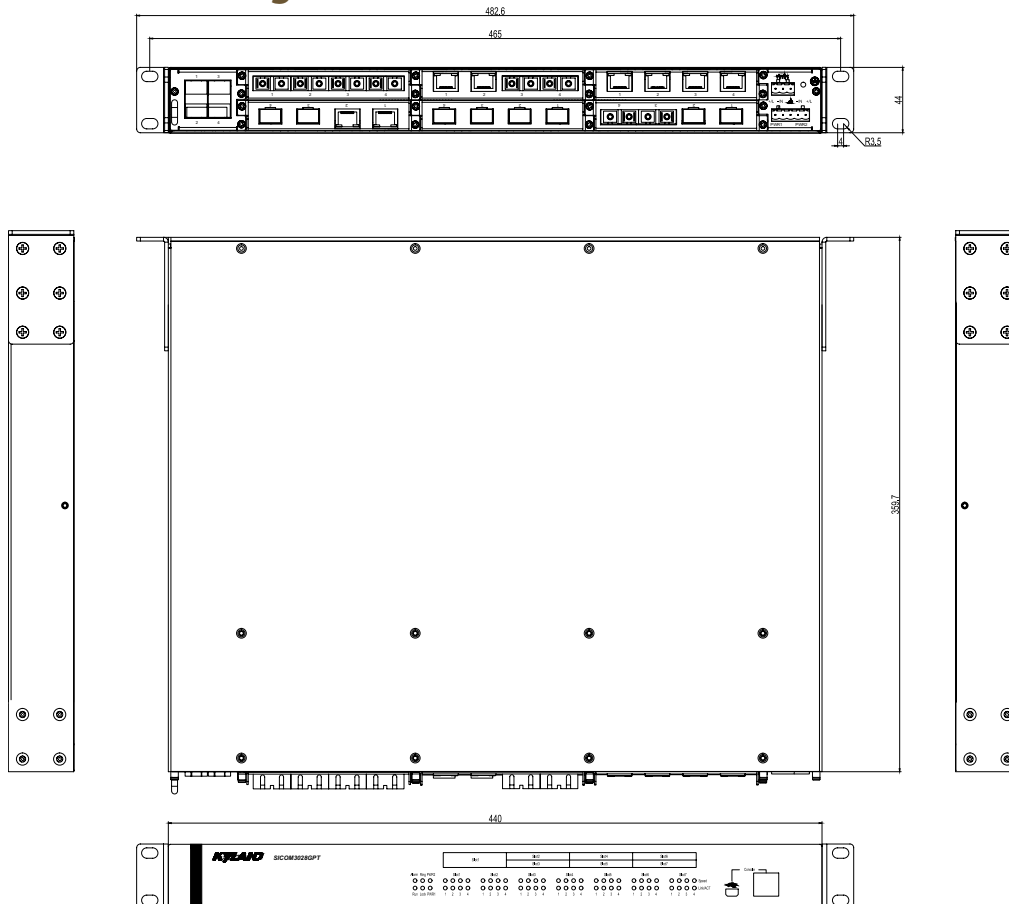
EMI

- ▼ 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)

➤ Mechanical Drawing



Ordering Information

Chassis	SICOM3028GPT-SM-PS1-PS2
SM	
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	
HV	220AC/DCW (85-264 VAC/77-300 VDC)
L1	48DC (36-72 VDC)
L3	24DC (18-36 VDC)
PS2	
HV	220AC/DCW (85-264 VAC/77-300 VDC)
L1	48DC (36-72 VDC)
L3	24DC (18-36 VDC)
None	No secondary power supply

Ethernet Module

Slot 1	SM6.6-Ports-1U
Ports	
4GX	4x1000Base-X, 10/100/1000Base-T(X) SFP port, 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
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

Functional Module**Slot2-Slot7**

SM6.6-HSR/PRP-GE-0.5U	HSR/PRP Redbox module, 2 1000Base-T RJ45 port
SM6.6-HSR/PRP-GX-0.5U	HSR/PRP Redbox module, 2 1000Base-X 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-PTP-OVER-E1-0.5U	PTP over E1 clock synchronization module, balance interface
SM6.6-PTP-OVER-E1-UB-0.5U	PTP over E1 clock synchronization module, unbalance interface
SM6.6-GPS-OI-0.5U	GPS clock synchronization module, 1 GPS antenna input, 1 PPS output
SM6.6-GPS-OI-FI-0.5U	GPS clock synchronization module, 1 GPS antenna input, 1 5M/10M frequency input, 1 PPS output
SM6.6-4D-232/485/422-0.5U	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

» 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)

 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-PTP-OVER-E1-0.5U	✓		✓		✓		✓	
SM6.6-PTP-OVER-E1-UB-0.5U	✓		✓		✓		✓	
SM6.6-GPS-OI-0.5U	✓		✓		✓		✓	
SM6.6-GPS-OI-FI-0.5U	✓		✓		✓		✓	
SM6.6-4D-232/485/422-0.5U	✓	✓	✓	✓	✓	✓	✓	✓
SM6.6-4D-A-4RS232/422/485-0.5U	✓	✓	✓	✓	✓	✓	✓	✓
SM6.6-TMS-Trigger-1U	✓		✓		✓		✓	
SM6.6-4GX-1U	✓	✓	✓	✓	✓	✓	✓	✓
SM6.6-4GE-1U	✓	✓	✓	✓	✓	✓	✓	✓
SM6.6-2GX2GE-1U	✓	✓	✓	✓	✓	✓	✓	✓
SM6.6-4GX-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	✓	✓	✓	✓	✓	✓	✓	✓
SM6.6-4T-0.5U	✓	✓	✓	✓	✓	✓	✓	✓