

# SICOM6028GPT SICOM6424PT



## Layer 3 28G/24+4G Port Full Gigabit Managed Rack Mountable Modular IEC61850 & IEEE1588 Switch

- Supports RIP, OSPF layer 3 routing protocols
- Flexible modular design for easy expansion, 1U structure
- Supports max 28 Gigabit ports or 4 Gigabit ports and 24 fast Ethernet ports
- Supports IEEE1588v2
- Supports ITU-T. G. 8261/G. 8262 (SyncE)
- Supports IEC62439-6, DT-Ring protocols, MSTP and VRRP
- Extensible GPS and IRIG-B input/output modules
- Provides Mini USB Console port, supports setting backup and recovery through USB
- Supports VCT (Virtual Cable Test)
- Exceeds IEC61850-3 and IEEE1613



### Overview

SICOM6028GPT/SICOM6424PT series are members of Kyland intelligent modular platform SICOM GPT series which is an All-in-One solution integrating IEEE1588v2, SyncE, 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. SICOM6028GPT/SICOM6424PT features the IEEE1588v2 & SyncE protocols with hardware time stamping allowing 10 nanoseconds time synchronization over each of 28 Gigabit/100M Ethernet ports. Its high port density in 1U chassis and fully modular design offers the maximum flexibility for easy expansion.

SICOM GPT Series is equipped with a Kyland patent IEC62439-6 ring protocol which enables less than 20ms recovery time. It also supports DT-Ring, RSTP/STP, MSTP and VRRP. Mini USB console port enables configuration easy backup and restore. SICOM GPT series has a GPS module, enabling the device to function as the clock source - offering accurate timing information obtained from GPS or Beidou GPS satellites. It also supports IRIG-B input and output modules which enable the customer to synchronize the whole system with large numbers of IRIG-B devices with accurate timing information. The new SICOM GPT series is fully compliant with IEC61850-3 and IEEE1613 standards.

### Features & Benefits

- Redundancy Technology: supports IEC62439-6 (recovery time<20ms), DT-Ring protocols (recovery time<50ms), MSTP and VRRP
- Multicast Protocol: supports IGMP, IGMP Snooping, GMRP, PIM-SM, PIM-DM, DVMRP
- Routing Protocol: supports RIPv1/v2, OSPFv2, BGPv4 and static routing protocol
- Network Partition: supports VLAN, GVRP, PVLAN
- Service Quality: supports QoS
- Bandwidth Management: supports port trunking, port speed limit, broadcast storm control
- Network Management and Monitoring: supports CLI, Telnet, WEB management methods, Kyvision centralized management, SNMPv1/v2/v3, RMON, LLDP, DHCP
- Synchronization Protocol: supports SNTP, IEEE1588v2, ITU-T. G. 8261/G. 8262
- Network Security: supports IEEE 802.1X, SSH, SSL, TACACS+, RADIUS, ACL
- Device Management: supports FTP/TFTP upgrade, also supports Syslog upload and download
- Device Maintenance: supports port mirroring, VCT (Virtual Cable Test)
- Alarm Output: supports IP/MAC conflicts, power, temperature, port and ring alarms
- Special Function: supports Link Check and Loop Status Check

# Technical Specifications

## Standard

IEEE 802.3i, IEEE 802.3u, IEEE 802.3ab, IEEE802.3ac, IEEE 802.3ad, IEEE 802.3z, IEEE 802.3x, IEEE 802.1p, IEEE 802.1Q, IEEE 802.1s, IEEE802.1X, IEEE1588v2, IEC62439-6, ITU-T. G.8261/G. 8262

## Protocols

DT-Ring, DT-Ring+, DT-VLAN, MSTP, DRP, VRRP; IGMP, IGMP Snooping, GMRP, PIM-SM, PIM-DM, DVMRP; RIPv1/v2, OSPFv2, BGPv4; VLAN, GVRP, PVLAN; Telnet, HTTP, HTTPS, SNMPv1/v2/v3, RMON, LLDP, BootP, DHCP Option 82, DHCP server/relay/client; SNTP, RTC, PTP; SSH, SSL, TACACS+, RADIUS, ACL; FTP, TFTP, Syslog; ARP, Modbus TCP, QoS, LACP

## Switch Properties

Priority Queues: 8  
Number of VLANs: 256  
VLAN ID: 1-4094  
Number of Multicast Groups: 256  
MAC Table: 16K  
Packet Buffer: 12Mbit  
Packet Forwarding Rate: 41.7Mpps (SICOM6028GPT), 9.5Mpps (SICOM6424PT)  
Switching Delay: <5μs

## Interface

1 1U slot for 4-port Gigabit interface module (1000Base SFP or 10/100/1000Base-TX port)  
6 0.5U slots for 4-port Gigabit/Fast Ethernet interface modules  
Gigabit Ethernet Ports: max 28 1000Base SFP slots or 28 10/100/1000Base-TX RJ45 ports  
Fast Ethernet Ports: max 24 100Base-FX, SM/MM ports, FC/SC/ST connector or 24 10/100Base-TX RJ45 ports  
Console Port: Mini USB  
USB Interface: USB2.0  
Alarm Contact: 3-pin 5.08mm-spacing plug-in terminal block, 250VAC/220VDC Max, 2A Max, 60W Max

## LED

1) LEDs on Front Panel:  
Running LED: Run  
Alarm LED: Alarm  
Power LED: PWR1, PWR2  
Interface LED: Link/ACT, Speed  
Synchronization Finish LED: Lock  
2) LEDs on Rear Panel:  
Interface LED: Link/ACT  
Port Speed LED: Speed  
Data Transmitting and Receiving LED: Data (on IRIG-B interface module)  
Synchronization Finish LED: SYNC (on IRIG-B and GPS interface modules)

## Transmission Distance

Twisted Pair:  
100m (Standard CAT5, CAT5e network cable)  
Multi Mode Fiber:  
1310nm, 5km (100M)  
850nm, 550m (1000M)  
Single Mode Fiber:  
1310nm, 40km/60km (100M)

1550nm, 60km/80km (100M)  
1310nm, 10km/40km (1000M)  
1550nm, 60km/80km (1000M)

## Power Requirements

Power Input:  
24VDC (18-36VDC), 48VDC (36-72VDC), 220VAC/DC (85-264VAC/77-370VDC)  
Power Terminal:  
5-pin 5.08mm-spacing plug-in terminal block  
Power Consumption:  
<30W (full RJ45 ports); <44W (full fiber ports)

Overload Protection: Support  
Reverse Connection Protection: Support  
Redundancy Protection: Support

## Physical Characteristics

Housing: Metal, fanless  
Protection Class: IP40  
Dimensions (W×H×D): 482.6×44×360 mm (19×1.73×14.17 in.)  
Weight: <10kg (22.046 pound)  
Mounting: 19 inch 1U Rack mounting

## Environmental Limits

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

## MTBF

371,000 hrs

## Warranty

5 years

## Approvals

CE, FCC

## Industrial Standard

EMI:  
FCC CFR47 Part 15, EN55022/CISPR22, Class A

## EMS:

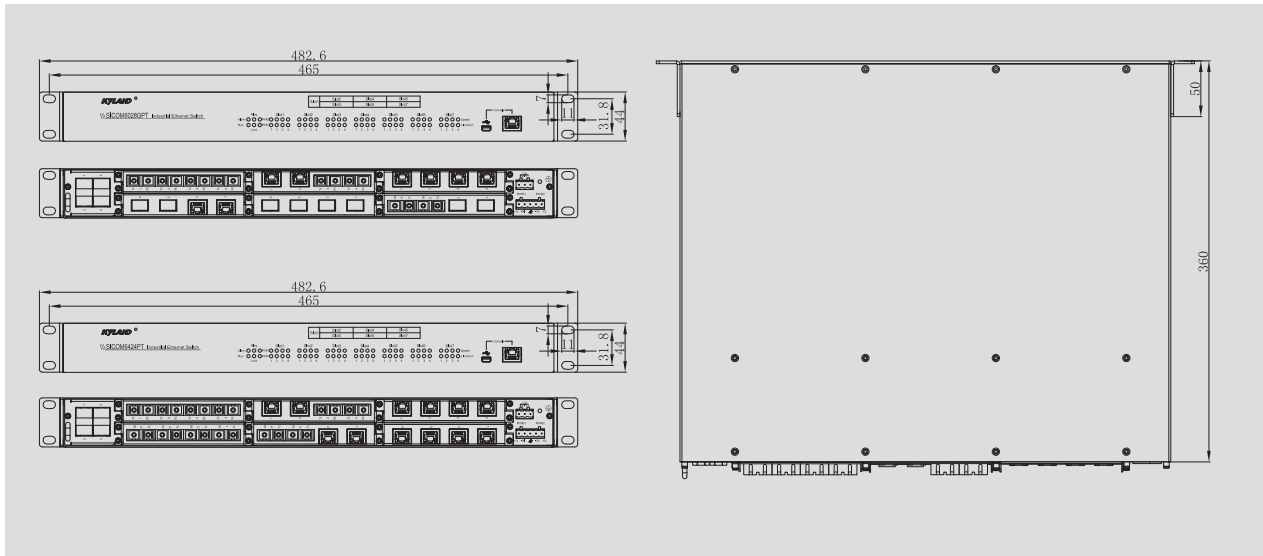
IEC61000-4-2 (ESD): ±8kV (contact), ±15kV (air)  
IEC61000-4-3 (RS): 10V/m (80MHz-2GHz)  
IEC61000-4-4 (EFT): Power Port: ±4kV; Data Port: ±2kV  
IEC61000-4-5 (Surge): Power Port: ±2kV/DM, ±4kV/CM; Data Port: ±2kV  
IEC61000-4-6 (CS): 3V (10kHz-150kHz); 10V (150kHz-80MHz)  
IEC61000-4-8 (Power frequency magnetic field): 100A/m (cont.), 1000A/m (1s-3s)  
IEC61000-4-9 (Pulsed magnetic field): 1000A/m  
IEC61000-4-10 (Damped oscillation): 100A/m  
IEC61000-4-12 (Oscillatory wave): 2.5kV/CM, 1kV/DM  
IEC61000-4-16 (Common mode conduction): 30V (cont.), 300V (1s)

## Machinery:

IEC60068-2-6 (Vibration)  
IEC60068-2-27 (Shock)  
IEC60068-2-32 (Free Fall)

Industry: IEC61000-6-2  
Power: IEC61850-3, IEEE1613  
Railway: EN50155, EN50121-4  
Traffic Control: NEMA TS-2

## ➤ Mechanical Drawing



## ➤ Ordering Information

Slot 1	Slot 2	Slot 4	Slot 6	PS
	Slot 3	Slot 5	Slot 7	

Model Chassis    S1    S2    S3    S4    S5    S6    S7

### Model Chassis: Chassis and Power Supplies

**SICOM6028GPT-24-XX** = SICOM6028GPT-MB-24DC-V1.0, SICOM6028GPT Chassis with 24VDC(18-36VDC) power supply

**SICOM6028GPT-24-24** = SICOM6028GPT-MB-24DC-24DC-V1.0, SICOM6028GPT Chassis with dual redundant 24VDC(18-36VDC) power supplies

**SICOM6028GPT-48-XX** = SICOM6028GPT-MB-48DC-V1.0, SICOM6028GPT Chassis with 48VDC(36-72VDC) power supply

**SICOM6028GPT-48-48** = SICOM6028GPT-MB-48DC-48DC-V1.0, SICOM6028GPT Chassis with dual redundant 48VDC(36-72VDC) power supplies

**SICOM6028GPT-HI-XX** = SICOM6028GPT-MB-220AC/DCW-V1.0, SICOM6028GPT Chassis with 85-264VAC/77-370VDC power supply

**SICOM6028GPT-HI-HI** = SICOM6028GPT-MB-220AC/DCW-220AC/DCW-V1.0, SICOM6028GPT Chassis with dual redundant 85-264VAC/77-370VDC power supplies

**SICOM6424PT-24-XX** = SICOM6424PT-MB-24DC-V1.0, SICOM6424PT Chassis with 24VDC(18-36VDC) power supply

**SICOM6424PT-24-24** = SICOM6424PT-MB-24DC-24DC-V1.0, SICOM6424PT Chassis with dual redundant 24VDC(18-36VDC) power supplies

**SICOM6424PT-48-XX** = SICOM6424PT-MB-48DC-V1.0, SICOM6424PT Chassis with 48VDC(36-72VDC) power supply

**SICOM6424PT-48-48** = SICOM6424PT-MB-48DC-48DC-V1.0, SICOM6424PT Chassis with dual redundant 48VDC(36-72VDC) power supplies

**SICOM6424PT-HI-XX** = SICOM6424PT-MB-220AC/DCW-V1.0, SICOM6424PT Chassis with 85-264VAC/77-370VDC power supply

**SICOM6424PT-HI-HI** = SICOM6424PT-MB-220AC/DCW-220AC/DCW-V1.0, SICOM6424PT Chassis with dual redundant 85-264VAC/77-370VDC power supplies

### S1: 1U Module

XX = None

**4GX1U** = SM6.6-4GX-1U-V1.0, 1U Module with 4 Gigabit SFP ports

**4GE1U** = SM6.6-4GE-1U-V1.0, 1U Module with 4 Gigabit 10/100/1000Base-TX RJ45 ports

**2GX2GE1U** = SM6.6-2GX-2GE-1U-V1.0, 1U module with 2 Gigabit SFP ports and 2 10/100/1000Base-TX RJ45 ports

## **Model Chassis: Chassis and Power Supplies**

### **S2-S7: 0.5U Module**

**XX** = None

**4GX** = SM6.6-4GX-0.5U-V1.0, 0.5U Module with 4 Gigabit SFP ports (Only available for SICOM6028GPT)

**4GE** = SM6.6-4GE-0.5U-V1.0, 0.5U Module with 4 Gigabit 10/100/1000Base-TX RJ45 ports (Only available for SICOM6028GPT)

**2GX2GE** = SM6.6-2GX-2GE-0.5U-V1.0, 0.5U Module with

2 Gigabit 10/100/1000Base-TX RJ45 ports and 2 Gigabit SFP ports (Only available for SICOM6028GPT)

**4T** = SM6.6-4T-0.5U-V1.0, 0.5U Module with 4 10/100Base-TX RJ45 ports

**4SSC** = SM6.6-4S-SC-1310-40-0.5U-V1.0, 0.5U Module with 4 100Base-FX single mode fiber ports, 1310nm, 40km, SC connector

**4SST** = SM6.6-4S-ST-1310-40-0.5U-V1.0, 0.5U Module with 4 100Base-FX single mode fiber ports, 1310nm, 40km, ST connector

**4SFC** = SM6.6-4S-FC-1310-40-0.5U-V1.0, 0.5U Module with 4 100Base-FX single mode fiber ports, 1310nm, 40km, FC connector

**4SSC60** = SM6.6-4S-SC-1310-60-0.5U-V1.0, 0.5U Module with 4 100Base-FX single mode fiber ports, 1310nm, 60km, SC connector

**4SSC80** = SM6.6-4S-SC-1550-80-0.5U-V1.0, 0.5U Module with 4 100Base-FX single mode fiber ports, 1550nm, 80km, SC connector

**4MSC** = SM6.6-4M-SC-1310-5-0.5U-V1.0, 0.5U Module with 4 100Base-FX multimode fiber ports, 1310nm, 5km, SC connector

**4MST** = SM6.6-4M-ST-1310-5-0.5U-V1.0, 0.5U Module with 4 100Base-FX multimode fiber ports, 1310nm, 5km, ST connector

**4MFC** = SM6.6-4M-FC-1310-5-0.5U-V1.0, 0.5U Module with 4 100Base-FX multimode fiber ports, 1310nm, 5km, FC connector

**2GX2SSC** = SM6.6-2GX-2S-SC-1310-40-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX single mode fiber ports, 1310nm, 40km, SC connector (Only available for SICOM6028GPT)

**2GX2SST** = SM6.6-2GX-2S-ST-1310-40-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX single mode fiber ports, 1310nm, 40km, ST connector (Only available for SICOM6028GPT)

**2GX2SFC** = SM6.6-2GX-2S-FC-1310-40-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX single mode fiber ports, 1310nm, 40km, FC connector (Only available for SICOM6028GPT)

**2GX2SSC60** = SM6.6-2GX-2S-SC-1310-60-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX single mode fiber ports, 1310nm, 60km, SC connector (Only available for SICOM6028GPT)

**2GX2SSC80** = SM6.6-2GX-2S-SC-1550-80-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX single mode fiber ports, 1550nm, 80km, SC connector (Only available for SICOM6028GPT)

**2GX2MSC** = SM6.6-2GX-2M-SC-1310-5-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX multimode fiber ports, 1310nm, 5km, SC connector (Only available for SICOM6028GPT)

**2GX2MST** = SM6.6-2GX-2M-ST-1310-5-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX multimode fiber ports, 1310nm, 5km, ST connector (Only available for SICOM6028GPT)

**2GX2MFC** = SM6.6-2GX-2M-FC-1310-5-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX multimode fiber ports, 1310nm, 5km, FC connector (Only available for SICOM6028GPT)

**2SSC2T** = SM6.6-2S-SC-1310-40-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX single mode fiber ports, 1310nm, 40km, SC connector and 2 10/100Base-TX RJ45 ports

**2SST2T** = SM6.6-2S-ST-1310-40-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX single mode fiber ports, 1310nm, 40km, ST connector and 2 10/100Base-TX RJ45 ports

**2SFC2T** = SM6.6-2S-FC-1310-40-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX single mode fiber ports, 1310nm, 40km, FC connector and 2 10/100Base-TX RJ45 ports

**2SSC602T** = SM6.6-2S-SC-1310-60-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX single mode fiber ports, 1310nm, 60km, SC connector and 2 10/100Base-TX RJ45 ports

**2SSC802T** = SM6.6-2S-SC-1550-80-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX single mode fiber ports, 1550nm, 80km, SC connector and 2 10/100Base-TX RJ45 ports

**2MSC2T** = SM6.6-2M-SC-1310-5-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX multimode fiber ports, 1310nm, 5km, SC connector and 2 10/100Base-TX RJ45 ports

**2MST2T** = SM6.6-2M-ST-1310-5-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX multimode fiber ports, 1310nm, 5km, ST connector and 2 10/100Base-TX RJ45 ports

**2MFC2T** = SM6.6-2M-FC-1310-5-2T-0.5U-V1.0, 0.5U Module with 2 100Base-FX multimode fiber ports, 1310nm, 5km, FC connector and 2 10/100Base-TX RJ45 ports

**GPS** = SM6.6-GPS-OI-0.5U-V1.0, GPS Clock Synchronization Module

**BO** = SM6.6-PTP-BO-0.5U-V1.1, IRIG-B PTP Clock Converter Output Module

### **Accessories**

**DT-GPS-ANT-01** = GPS Antenna

**DT-SP-01** = GPS Surge Protection AR21T

**DT-LMR400-20-TNC-BNC** = 20m coaxial cable with BNC(male) to TNC(male) adaptor

**DT-LMR400-2-TNC-BNC** = 2m coaxial cable with BNC(male) to TNC(male) adaptor

**GPT Module Puller**

**DT-XL-Mini-USB-USB-2m** = 2M USB Console Cable

Patch Cord Organizers (One Pair)

**DT-BNC(K)-TNC(K)** = BNC (female) to TNC (female) connector