

# SICOM6028GP SICOM6424P



## Layer 3 28G/24+4G Port Full Gigabit Managed Rack Mountable Modular IEC61850 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 IEC62439-6, DT-Ring protocols, MSTP and VRRP
- Provides Mini USB Console port, supports setting backup and recovery through USB
- Supports VCT (Virtual Cable Test)
- Exceeds IEC61850-3 and IEEE1613



### Overview

SICOM6028GP/SICOM6424P 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. SICOM6028GP/SICOM6424P are equipped with Kyland patent IEC62439-6/DRP ring protocol which enables less than 20ms recovery time. It also supports DT-Ring, RSTP/STP and MSTP. Mini USB console port enables configuration easy backup and restore. SICOM GPT series is fully compliant with IEC61850-3 and IEEE1613 standards.

Supporting up to 28 Gigabit/100M Ethernet ports, the SICOM6028GP/SICOM6424P series has one 1U Gigabit slot for 4 Gigabit uplink ports, and 6 0.5U slots with 4 Gigabit or 100M ports on each module. With all high density ports being on rear panel, the SICOM GPT series is 1U height with only 360mm depth. Fully modular design offers the maximum flexibility for easy expansion. SICOM6028GP/SICOM6424P deliver great bandwidth, SFP expansions, network redundancy technology, management features, a fanless design, a wide operating temperature range of -40 to 85°C, and future proof protection of your industrial network.

### 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 time synchronization
- 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, IEC62439-6

## 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; SNMP, RTC; 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 (SICOM6028GP), 9.5Mpps (SICOM6424P)  
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  
2) LEDs on Rear Panel:  
Interface LED: Link/ACT  
Port Speed LED: Speed

## 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:  
<28W (full RJ45 ports); <42W (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

368,000 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)

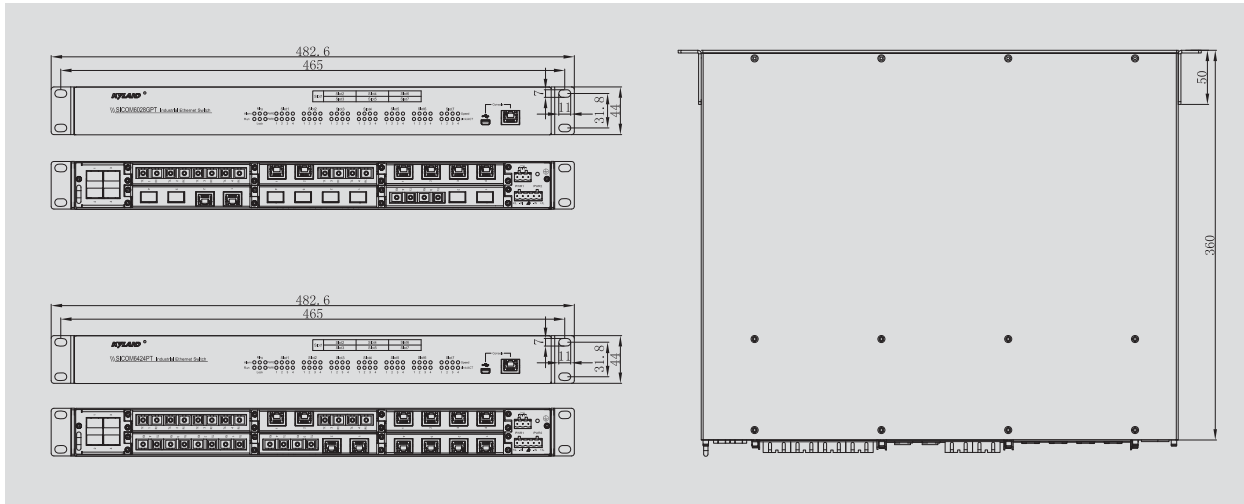
## Machinery:

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	
	Slot 3	Slot 5	Slot 7	PS

Model Chassis S1 S2 S3 S4 S5 S6 S7

### Model Chassis: Chassis and Power Supplies

**SICOM6028GP-24-XX** = SICOM6028GP-MB-24DC-V1.0, SICOM6028GP Chassis with 24VDC(18-36VDC) power supply

**SICOM6028GP-24-24** = SICOM6028GP-MB-24DC-24DC-V1.0, SICOM6028GP Chassis with dual redundant 24VDC(18-36VDC) power supplies

**SICOM6028GP-48-XX** = SICOM6028GP-MB-48DC-V1.0, SICOM6028GP Chassis with 48VDC(36-72VDC) power supply

**SICOM6028GP-48-48** = SICOM6028GP-MB-48DC-48DC-V1.0, SICOM6028GP Chassis with dual redundant 48VDC(36-72VDC) power supplies

**SICOM6028GP-HI-XX** = SICOM6028GP-MB-220AC/DCW-V1.0, SICOM6028GP Chassis with 85-264VAC/77-370VDC power supply

**SICOM6028GP-HI-HI** = SICOM6028GP-MB-220AC/DCW-220AC/DCW-V1.0, SICOM6028GP Chassis with dual redundant 85-264VAC/77-370VDC power supplies

**SICOM6424P-24-XX** = SICOM6424P-MB-24DC-V1.0, SICOM6424P Chassis with 24VDC(18-36VDC) power supply

**SICOM6424P-24-24** = SICOM6424P-MB-24DC-24DC-V1.0, SICOM6424P Chassis with dual redundant 24VDC(18-36VDC) power supplies

**SICOM6424P-48-XX** = SICOM6424P-MB-48DC-V1.0, SICOM6424P Chassis with 48VDC(36-72VDC) power supply

**SICOM6424P-48-48** = SICOM6424P-MB-48DC-48DC-V1.0, SICOM6424P Chassis with dual redundant 48VDC(36-72VDC) power supplies

**SICOM6424P-HI-XX** = SICOM6424P-MB-220AC/DCW-V1.0, SICOM6424P Chassis with 85-264VAC/77-370VDC power supply

**SICOM6424P-HI-HI** = SICOM6424P-MB-220AC/DCW-220AC/DCW-V1.0, SICOM6424P 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

## **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 SICOM6028GP)

**4GE** = SM6.6-4GE-0.5U-V1.0, 0.5U Module with 4 Gigabit 10/100/1000Base-TX RJ45 ports (Only available for SICOM6028GP)

**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 SICOM6028GP)

**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 SICOM6028GP)

**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 SICOM6028GP)

**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 SICOM6028GP)

**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 SICOM6028GP)

**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 SICOM6028GP)

**2GX2MSC** = SM6.6-2GX-2M-SC-1310-5-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX multi mode fiber ports, 1310nm, 5km, SC connector (Only available for SICOM6028GP)

**2GX2MST** = SM6.6-2GX-2M-ST-1310-5-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX multi mode fiber ports, 1310nm, 5km, ST connector (Only available for SICOM6028GP)

**2GX2MFC** = SM6.6-2GX-2M-FC-1310-5-0.5U-V1.0, 0.5U Module with 2 Gigabit SFP ports and 2 100Base-FX multi mode fiber ports, 1310nm, 5km, FC connector (Only available for SICOM6028GP)

**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

## **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

## **Example Order Codes**

SICOM6028GP-HI-HI-4GX1U-4GX-4GX-4GX-4GX-4GX

SICOM6028GP with 28G SFP ports and dual redundant 85-264VAC/77-370VDC power supplies