PTC1000

PTP (Precision Time Protocol) Clock Converter

- Support IEEE1588v2, the synchronization accuracy reaches ±100ns
- Support ITU-T.G.8261/G.8262 SyncE, the synchronization accuracy can reach ±50ns with SyncE enabled
- Support 1 100Base-FX SC/ST/FC or 1 10/100Base-TX RJ45 IEEE1588 input
- Support max 4 10/100Base-TX RJ45 Ethernet ports
- Support PPS output, IRIG-B TTL outputs, and IRIG-B AM modulation
- Support both vertical and horizontal Din-Rail installation
- Exceeds IEC61850-3 & IEEE1613
- CE, FCC, UL508 Class1 Div2 certificates (Certifications for newly added models with switching ability are still pending)

Overview

PTC1000 Clock Converter realizes the conversion from PTP to IRIG-B and PPS (Pulse Per Second). This allows the industrial devices that are equipped with IRIG-B clock interfaces and PPS interface to conveniently access PTP network. This provides economic solution for evolving legacy network into future-proofing PTP network and achieve high precision synchronization required in industrial control system.

The PTC1000 supports both vertical and horizontal Din-Rail installation. It provides one 100M fiber/copper port for IEEE1588 input, max 4 10/100Base-TX RJ45 Ethernet ports. Time output signal includes PPS, IRIG-B (DC) and IRIG-B (AC).

***Latest Updates:**

1. Power supply 24DC (18-36VDC) has been upgraded to 24DCW (18-72VDC).
2. PTC1000 has been added with new model options which supports 4 10/100Base-TX RJ45 Ethernet ports which eliminates the need for an additional Ethernet switch in the location where only 1-4 IEDs exist. New added models will be RFD (Ready for delivery) since April 1, 2014.
3. PTC1000-T/M/S Certifications including CE, FCC and UL508 Class1 Div2 have been finalized. The certifications for newly added models with switching ability are still pending.

Features & Benefits

1. Network Management and Monitoring: supports CLI, Telnet, WEB management, Kyvision centralized management, SNMPv1/v2, LLDP
2. Synchronization Protocol: supports IEEE1588v2, ITU-G.8261/G.8262 SyncE
3. Device Management: supports FTP upgrade and FTP file transmission
4. Network Partition: supports VLAN

Technical Specifications

Standard

IEEE 802.3i, IEEE 802.3u, IEEE 802.3x, IEEE1588v2, ITU-G.8261/G.8262

Protocols

VLAN, GMRP, IGMP-Snooping; Telnet, HTTP, SNMPv1/v2, LLDP; PTP,RTC; FTP

Switch Properties

Number of VLANs: 256
VLAN ID: 1-4094
MAC Table: 8K
Packet Buffer: 1Mbit
Packet Forwarding Rate: 1.4Mpps
Switching Delay: <5μs

Interface

Fast Ethernet Port: 1 100Base-FX, SM/MM port, FC/SC/ST connector or 1 10/100Base-TX RJ45 port as IEEE1588 input, max 4 10/100Base-TX RJ45 Ethernet ports
Console Port: RS232 (RJ45 connector)
Alarm Contact: 3-pin 5.08mm-spacing plug-in terminal block, 250VAC/220VDC Max, 2A Max, 60W Max
Clock Interface: BNC interface, 2-pin 5.08 mm-spacing pluggable terminal blocks, 4-pin 5.08mm-spacing pluggable terminal block

Clock Signal

PPS: TTL level +5V, 50Ω, Rising edge based, pulse width 20ms-200ms, stepped by 20ms (adjustable in software)
IRIG-B DC: TTL level +5V, 50Ω, Rising edge based
IRIB-B AM: Vp-p, 3V-10V (adjustable in software, default Vp-p: 4.5V), 600Ω, Modulation Ratio 3:1, 4:1, 5:1, 6:1 (optional, default modulation ratio is 3:1)

LED
LEDs on Front Panel
Running LED: Run
Alarm LED: Alarm
Power LED: PWR1, PWR2
Interface LED: Link/ACT, Speed
PTP Sync LED: Sync

Transmission Distance
Twisted Pair: 100m (Standard CAT5, CAT5e network cable)
Multi Mode Fiber: 1310nm, 5km (100M)
Single Mode Fiber: 1310nm, 40km/60km (100M), 1550nm, 80km (100M)

Power Requirements
Power Input: 24DCW (18-72VDC), 220AC/DCW(85-264VAC/77-300VDC)
Power Terminal: 5-pin 5.08mm-spacing plug-in terminal block
Power Consumption: <4W (PTC1000-T, PTC1000-S/M)
<7W (PTC1000-5T, PTC1000-1S/M-4T)
Overload Protection: Support
Reverse Connection Protection: Support
Redundancy Protection: Support (only for 24DCW option)

Physical Characteristics
Housing: Aluminum, fanless
Protection Class: IP40
Dimensions (W×H×D): 62.4×139×119.5 mm (2.45×5.47×4.70 in.)
Weight: <0.75kg (1.653 pound)
Mounting: Vertical or Horizontal Din-Rail

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
350,000hrs

Warranty
5 years

Approvals
CE, FCC, UL508 Class1 Div2 (PTC1000-T/M/S only, newly added models are pending)

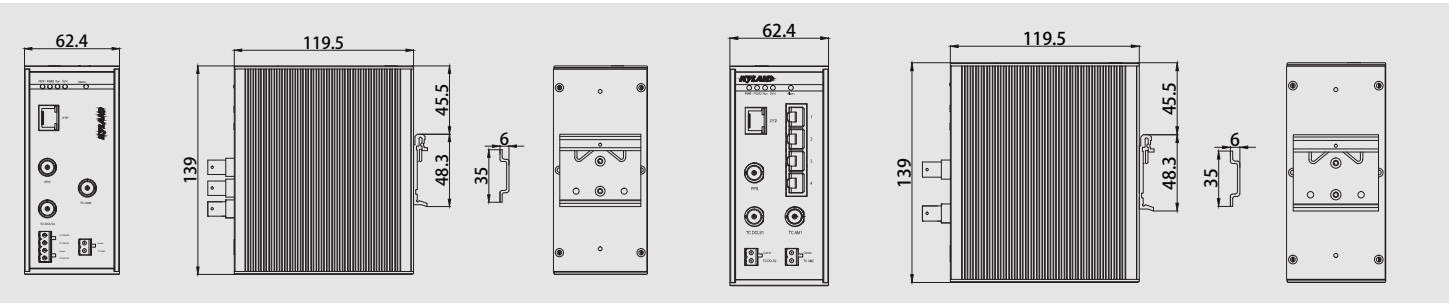
Industrial Standard
EMI:
FCC CFR47 Part 15, EN55022/CISPR22, Class A

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

Mechanical Drawing



Ordering Information

PTC1000 - _____ - _____ - _____ - ___
Ports Distance Connector PS

Ports
T = 1 10/100Base-TX RJ45 port
M = 1 100Base-FX multi mode port
S = 1 100Base-FX single mode port
5T = 5 10/100Base-TX RJ45 ports
1M-4T = 1 100Base-FX multi mode fiber port, 4 10/100Base-TX RJ45 ports
1S-4T = 1 100Base-FX single mode fiber port, 4 10/100Base-TX RJ45 ports

Distance: Fiber Distance
1310-5 = 1310nm, 5km
1310-40 = 1310nm, 40km
1310-60 = 1310nm, 60km
1550-80 = 1550nm, 80km

Connector: Fiber Connector
SC = SC Connector
ST = ST Connector
FC = FC Connector

PS: Power Supply
24DCW = 18-72VDC, dual redundant power inputs
220AC/DCW = 85-264VAC/77-300VDC, single power input

Example Order Codes
PTC1000-1M-4T-1310-5-SC-220AC/DCW
1 multi mode 1310nm 5km fiber port with SC connector, and 4 10/100Base-TX RJ45 ports, 85-264VAC/77-300VDC power supply