

Edge SyncMaster Device- TFT 1100

High Precision Rubidium/OCXO SyncMaster Device

Timing is the first requirement of human information interaction since ancient times. Nowadays, information technology and communication technology are constantly updated with each passing day, and the requirements for time-frequency synchronization of various systems are getting higher and higher. For example, today's 5G communication network requires the time source, time transmission, and end device, time synchronization performance to reach 10 to 30ns. In order to cope with the deployment of future networks, our company has specially developed low cost sync master TFT1100, it can be widely distributed in access networks.



TFT1100 high-precision synchronization equipment can be widely used in communication, power, military and other systems, with time frequency tracing, local clock time, time transmission and time frequency output functions. TFT1100 Supports configuration and maintenance-free functions, and provides a network management platform and indicator display. The timing network can be a star, chain and complex models. The equipment output performance meet 30ns accuracy, it can be widely used in telecommunications, electric power and military communication, provide a reliable and high-performance time-frequency synchronization signals.

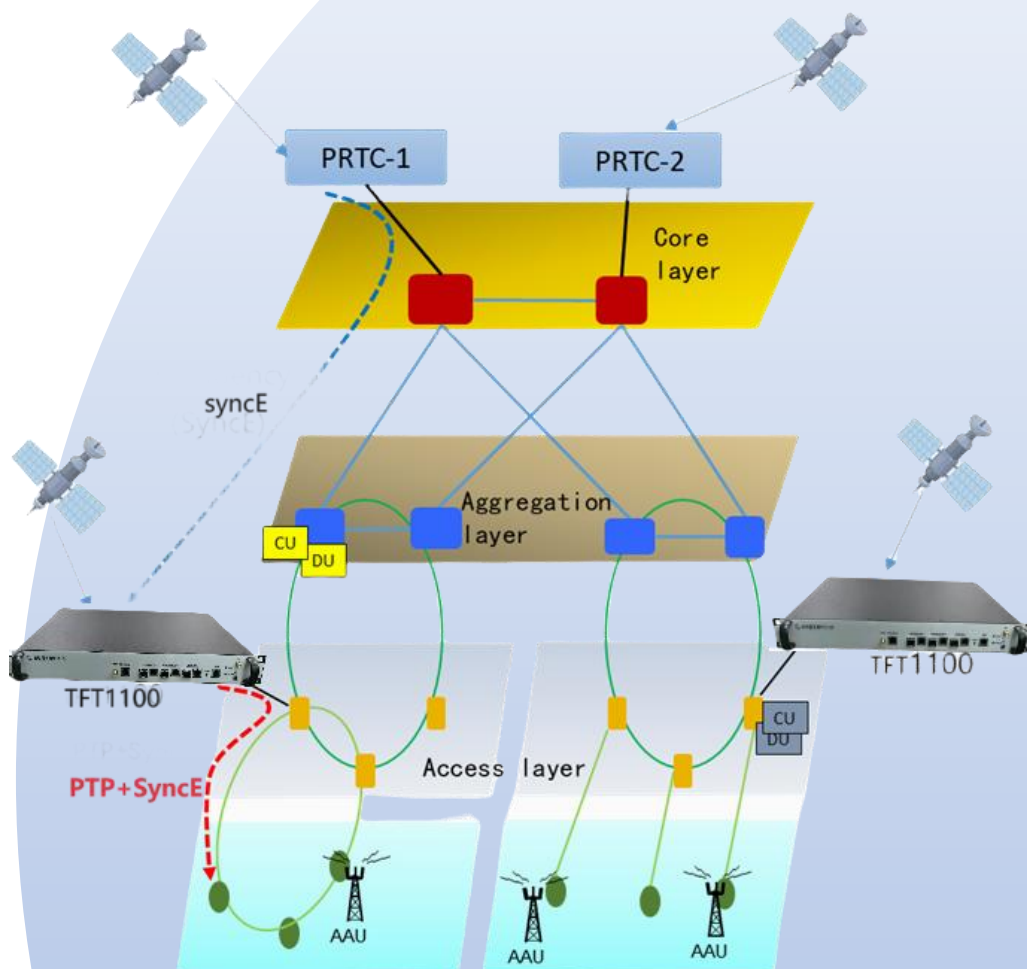
- ❖ Suitable in 19 inch rack (1U);
- ❖ Support 7*24 hours uninterrupted service;
- ❖ Support Ethernet NMS management;
- ❖ Support dual -48V DC redundant power;
- ❖ Support PTP, NTP, SyncE output

- ❖ Support IEEE 1588v2 default profile, ITU-T G.8275.1, ITU-T G.8275.2, ITU-T G.8265.1 profile.
- ❖ Support PTP/NTP bounding, PTP and NTP output can be configured at the same port;
- ❖ NTP concurrent output capability 600000 times per second;
- ❖ IPv4 and IPv6 supported at NTP/PTP

TFT 1100 Application Case

- ⌚ PTP & Sync-E Timing Distribution at the edge of mobile backhaul and fronthaul Telecom networks for frequency and phase synchronization
- ⌚ Synchronization delivery within buildings for indoor small cell radio base stations
- ⌚ Synchronization of legacy network architectures based on NTP
- ⌚ Time as a service (TaaS) into data center, financial, health and media networks
- ⌚ Railway transit network synchronization
- ⌚ Broadcast system, intelligent hospitals, financial system, civil aviation system, smart city synchronization
- ⌚ Smart Power Grid synchronization

Below diagram shows TFT1100 working as small size sync master in access network.



TFT 1100 Technical Parameters

If external source is not available, TFT1100 will use embedded OCXO or Rubidium clock as working clock. OCXO or Rubidium option clock performance show as below:

Item	OCXO	Rubidium
Frequency stability	$\pm 3 \times 10^{-10}$ per day	$\pm 5 \times 10^{-12}$ per day
Temperature stability	$\pm 1.5 \times 10^{-10}$ @ $-40^{\circ}\text{C} \sim 75^{\circ}\text{C}$	$\pm 6 \times 10^{-10}$ @ $-20^{\circ}\text{C} \sim 50^{\circ}\text{C}$
Phase holdover	30us per day	500ns per day
Aging(30 days after powered on)	$\pm 3 \times 10^{-10}$ per day	$\pm 5 \times 10^{-12}$ per day
	$\pm 5 \times 10^{-9}$ per month	$\pm 5 \times 10^{-11}$ per month

TFT 1100 Technical Parameters

TFT1100 key feature

- Suitable in 19 inch rack(4U);
- Support 7*24 hours uninterrupted service;
- Support Ethernet NMS management;
- Support dual -48V DC redundant power;
- Support PTP, NTP, SyncE output
- Support IEEE 1588v2 default profile, ITU-T G.8275.1, G.8275.2, G.8265.1 profile.
- Support PTP/NTP bounding, PTP and NTP output can be configured at the same port;
- NTP concurrent output capability 600000 times per second;
- IPv4 and IPv6 supported at NTP/PTP port;

Supported Network Protocol

- IEEE1588v2
- ITU-T G.8264, G.8273.2.
- ITU-T G.8275.1, G.8275.2, G.8265.1.
- RFC 1059 (NTPv1), RFC 1119 (NTPv2), RFC 1305 (NTPv3), RFC 5905 (NTPv4)
- ARP
- IPv4/IPv6
- FTP
- Telnet/SSH
- SNMP

Interface

- 1*GE Management port(RJ45)
- 1*GNSS(Beidou, GPS, GLONASS, GALILEO)
- 1*GE PTP+SyncE input
- 2*GE PTP/SyncE/NTP output
- 1*1PPS+TOD output
- 1*2MHz/E1 input
- 1*2MHz/E1 output

Phase & Frequency Accuracy

- 2MHz/E1 Frequency Performance: better than 5×10^{-13} /day when locked to GNSS
- 1PPS+TOD Phase Performance: better than $\pm 30\text{ns}$ when locked to GNSS

Management Port

- CLI local management via serial port (USB)
- Telnet configure or monitor device
- HTTP based visible management
- SNMP based centralized management

Environment

- Dimension: 435.8mm x 44.5mm x 305mm (WxHxD)
- Operation temperature (ambient): -5 to $+60^{\circ}\text{C}$
- Storage temperature: -40 to $+70^{\circ}\text{C}$
- Humidity: 0 to 95% (non-condensation)
- Dual DC PSU: -48VDC (Tolerant $-36 \sim -72\text{VDC}$).