

TerraMaster T12-450

12-bay High Speed Network Storage Server

Datasheet



The T12-450 is powered by an Intel Atom C3558R quad-core processor, with main frequency of up to 2.4GHz. It is also equipped with a 8GB DDR4 dual-channel memory (expandable up to 32GB); dual SFP+ 10GB fiber interfaces; and dual 2.5GbE ports, providing up to 20Gb transmission bandwidth through Link Aggregation. In addition, the transmission performance of the T12-450 has been doubled by the installation of dual M.2 NVMe SSD slots in combination with TerraMaster Hyper Cache SSD cache acceleration technology. The T12-450 has been specifically developed for users who require high-speed storage, which can meet the stringent demands of 4K image editing, virtualization, databases, and other applications with high storage performance requirements.

Teamwork

By building a 10-gigabit network, multiple Windows/Mac workstations can connect to T12-450 simultaneously for easier collaborative operations of online editing of multi-track 4K material, special effects, video composition, and shot clip import and output, which greatly improves the work efficiency and significantly reduces the production time.

New Operating System

T12-450 runs the new operating system TOS 5, which adds more than 50 new functions and 600 improvements compared with the previous generation. The new features meet more business requirements, as well as significantly improving response speed, security, and ease of use.

An Abundance of Data Storage Space

The T12-450 supports up to 20TB of hard drive, and the total capacity can reach 240TB. It can store 90 million HD photos, 48 million working documents, 120,000 HD movies, and 12 million downloadable music, enabling you to back up the data in Windows PC, MAC computer, mobile phone, HDD enclosure, and network disk to TNAS for centralized management. This adequately protects users from data loss resulting from hardware malfunction or ransomware.

Unique Hyper Cache SSD Cache Acceleration Technology

Hyper Cache is a unique SSD cache acceleration technology developed by TerraMaster. Compared with the traditional SSD cache, the Hyper Cache offers the user a choice of three alternative cache modes designed to suit different usage requirements. It can also improve the cache speed and security through the creation of disk arrays for the SSDs. The TerraMaster Hyper Cache could improve storage performance by 100%, providing the user

with more efficient and reliable hybrid storage.

Small-sized Compact Design

Structural optimization has remarkably reduced the space occupied by the T12-450, thus realizing product miniaturization. By adopting both vertical and horizontal designs, the T12-450 better satisfies the usage requirements of small-sized business users with limited space.

Flexible Storage Space Management

TRAIID is the abbreviation of TerraMaster RAID. TRAIID is a flexible disk array management tool developed by TerraMaster. It has features such as the automatic combination of disk space, hard disk failure redundancy protection, and automatic capacity expansion. All these functions do not require manual configuration by the user, and the system will automatically complete the configuration according to the properties of the hard disk. TRAIID provides users with an optimized, flexible and elastic disk array management solution, especially suitable for new users who are not proficient in how to configure a disk array.

Across-Platform File Services

The T12-450 supports all mainstream file services: SMB, NFS, SFTP/FTP, AFP, iSCSI, WebDAV; and is provided with multiple permission management of users, user groups, and folder, meeting across-platform file services in various network environments.

Rich Backup Solutions

TOS can protect valuable data using visual user interfaces and trustworthy storage solutions thanks to its integration with multiple backup applications that can address backup needs in an array of circumstances.

Time Machine Backup: Allows macOS users to back up data on MAC computers, manage



folder storage quotas, and selectively restore data based on the previous version of the backed up data as per timeline.

TerraSync: It's not only suitable for data synchronization among various clients for realizing version management of synchronized data, but it also can help Windows computer users to realize the multi-version backup of computer data.

TerraMaster File System Snapshot (TFSS): TFSS takes snapshots of entire file system of a TNAS device by reaping the benefits of the features of the file system, so as to avoid data loss caused by misoperations or ransomware attacks.

TFM Backup: With TFM Backup, one can easily back up shared folders in TNAS or to a wide range of various local storage locations or even to a remotely mounted folder.

CloudSync: This backs up or synchronizes TNAS data with the cloud drive, which not only improves the availability of cloud data, but also provides several offsite backup versions, thus safeguarding the security of your data.

Snapshot: It is possible to take continuous snapshots of your folders or iSCSI LUNs by enabling the snapshot schedule with the advanced storage technology and optimized snapshot technology available via the BTRFS file system. When problems arise, the system can roll back to points-in-time and restore to the last backup, thereby ensuring that your data is well protected.

Duple Backup: In order to provide several offsite backup versions, Duple Backup provides advanced data protection by backing up files in TNAS to another remote TNAS, file server, or cloud drive.

Building a Secure Access Channel

One can upgrade their network security protection level through private data access channel provided by VPN servers. The TerraMaster VPN server offers three modes of VPN services, namely PPTP, OpenVPN, and L2TP/IPsec. It is applicable to VPN connections for most network devices.



Improving IT Management Efficiency

The T12-450 connects to your domain server through the AD domain or LDAP domain and assigns storage space access rights to your domain users and user groups, in essence reducing IT management costs whilst also ameliorating the efficiency of staff.

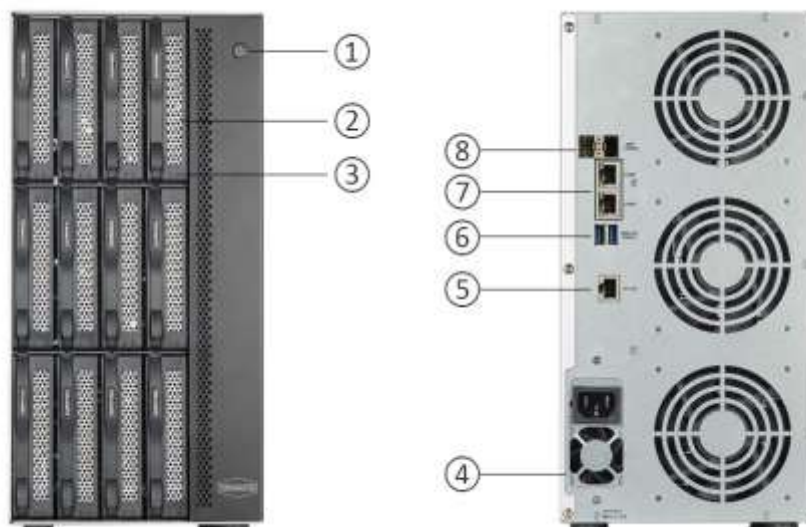
No Fear of Ransomware Attacks

The TerraMaster File System Snapshot (TFSS) is a data protection tool founded upon on file system developed by TerraMaster. The TFSS takes snapshots of an entire file system by exploiting advantages of the features of the BTRFS file system, as such all the data on your TNAS device will be protected. In case of an accident, one just simply clicks the snapshot list to recover the data in an instant, without the risk of human error or ransomware attacks.

Worry-free After-sales Service

TerraMaster implements its unique after-sales service policy that "provides replacements within 2 years" and offers worry-free quality assurance through real-time online customer service, a professional technical forum, an online user guide, a technical service mailbox, and remote troubleshooting.

Panel Illustration:



SN	Item	Item
①	Power switch/Power indicator	On: Power on Off: Power off
②	Hard drive tray	3.5" SATA HDD; 2.5" SATA HDD; 2.5" SATA SSD
③	Hard drive indicator	Red: Hard drive failure Green: Normal operation status Green (flickering): Reading/writing data Off: No hard drive detected

Rear Cover Illustration:

SN	Item	Description
④	Power interface	AC 100-240V input
⑤	Console port	Console serial communication interface
⑥	USB 3.1 host (x2)	Use to connect USB storage device or USB wireless adaptor
⑦	Network interface	2.5G/1000M/100M bps network interface
⑧	Network interface	10G/1000M/100M bps network interface

Specifications:

Hardware	
Processor	
Processor Model	Intel Atom® C3558R
Processor Architecture	X.86 64-bit
Processor Frequency	Quad Core 2.4 GHz
Hardware Encryption Engine	√
Hardware Transcoding Engine	/
Memory	
System Memory	8GB
Pre-installed Memory module	1
Total Memory Slot Number	2
Maximum Supported Memory	32 GB (16 GB + 16 GB)
Note	TerraMaster reserves the right to replace memory modules with the same or higher frequency based on supplier's product life cycle status. Rest assured that the compatibility and stability have been strictly verified with the same benchmark to ensure identical performance.
Storage	
Disk Slot Number	12
Compatible Drive types	3.5" SATA HDD
	2.5" SATA HDD
	2.5" SATA SSD
Maximum Internal Raw Storage Capacity	240TB (20TB x 12) (Capacity may vary by RAID types)
Max Single Volume	108TB
Drive Hot Swap	√
Note	<p>. Hard drive vendors will release their latest models of hard drives, and Maximum internal raw storage capacity may be adjusted accordingly.</p> <p>. The maximum single volume size is not directly related to the maximum raw capacity.</p>
File System	
Internal Drive	EXT4,BTRFS
External Drive	EXT3, EXT4, NTFS, FAT32, HFS+
External Ports	
SFP+ 10 GbE Network Jack	2
RJ-45 2.5GbE Network Jack	2

USB 3.1 Port	2 (Type-A USB 3.1 Gen1)
Console Port	1
M.2 NVMe Slot	2 (PCIe3.0 x2)
Appearance	
Size	334 x 163 x 295 mm
Packaging Size	437 x 235 x 370 mm
Weight	Gross Weight: 10.3 Kg
Others	
System Fan	80 mm x 80 mm x25mm 3 pcs
Fan Mode	Smart, High speed, Middle speed, Low speed
Noise Level	31.4 dB(A)
Power Supply	500W
AC Input Voltage	100V - 240V AC
Current Frequency	50/60 Hz, single frequency
Power Consumption	95 W (read & write)
	33 W (hard drive dormancy)
Limited warranty	2 years
Certificate	FCC, CE, CCC, KC
Environment	RoHS, WEEE
Temperature	
Working Temperature	0°C ~ 40°C (32°F ~ 104°F)
Storage Temperature	-20°C ~ 60°C (-5°F ~ 140°F)
Relative Humidity	5% ~ 95% RH
Package Contents	
	Host unit (x1)
	Power cord (x1)
	RJ-45 network cable (x1)
	Quick Installation Guide (x1)
	Limited Warranty Note(x1)
	Screws(a few)

OS Features	
OS Supported	
Supported Client OS	Windows OS, Mac OS, Linux OS
Supported Web Browsers	Google Chrome 97.0.xxxx, Mozilla Firefox 9.3,Apple Safari 12.1 ; Microsoft Edge 99.0.xx or later version.
Supported mobile OS	iOS12.0, Android 9.0 or later version
Storage Management	
Supported RAID Types	TRAIID, Single, JBOD, RAID 0, RAID 1, RAID5, RAID 6, RAID 10
Maximum Internal Volume Number	256
Maximum iSCSI Target	128
Maximum iSCSI LUN	256
Volume Expansion with Larger HDDs	TRAIID, RAID 1,RAID5,RAID 6,RAID10
Volume Expansion by Adding a HDD	TRAIID, RAID5,RAID6
RAID Migration	√
SSD Cache	√
Hot Spare	√
SSD TRIM	√
Hard Drive S.M.A.R.T.	√
Seagate IHM	√
NVRAM write cache(BBU-protected)	/
Shared Folder Snapshot	√
LUN Snapshot	/
File Services	
File Protocol	SMB/AFP/NFS/FTP/SFTP/WebDAV
Maximum Concurrent SMB/AFP/FTP/SFTP Connections	500
Windows Access Control List (ACL) Integration	√
NFS Kerberos Authentication	√
Account & Shared Folder	
Maximum local user's account number	2048
Maximum local group number	512
Maximum shared folders number	512
Maximum shared folders syncing tasks	8
Backup	
Rsync Backup	√
Duple Backup	√
Centralized Backup	√
Snapshot	√

USB Backup	√
Cloud Sync	√
Time Machine Backup	√
File System Snapshot	√
TFM Backup	√
Networking	
TCP/IP	IPv4/IPv6
Protocols	CIFS/SMB, NFS, FTP, SFTP, HTTPS, SSH, iSCSI, SNMP
Link Aggregation	√
DLNA Compliance	√
VPN Client	√
VPN Server	√
Proxy Client	√
Proxy Server	/
UPnP/Bonjour Discovery	√
TNAS.online Remote Access	√
DDNS	√
Access Right Management	
Batch users creation	/
Import/Export users	√
User Quota Management	√
Local user access control for CIFS/SAMBA and FTP	√
Domain Authentication	
AD Domain	√
LDAP Client	√
LDAP Server	/
Security	
Firewall Protection	√
Account Auto-block Protection	√
AES Volume and Shared Folder Encryption	√
Importable SSL certificate	√
Instant Alert via email, Desktop Notification, Beep	√
RSA 2048 Encryption (TOS 5.0)	√
PAM (Pluggable Authentication Modules)	√
OTP Authentication (TOS 5.0)	√
HyperLock File System (TOS 5.0)	√

Power Management	
Power Resume	√
Scheduled Power On/Off	√
Wake up On LAN (WOL)	√
UPS Supported	√
Administration	
Multi-window, Multi-task System Management	√
Custom Desktop	√
Control Panel	√
Resource Monitor	√
Syslog	√
OS UI Language	English, German, French, Spanish, Italian, Magyar, Chinese, Japanese, Korean, Turkish, Portuguese, Russian
Applications	
Application Center	√
iSCSI Target	√
Terra Photos	√
TerraSync	√
Duple Backup	√
CloudSync	√
Centralized Backup	√
USB Backup	√
VPN Server	√
Transmission	√
qBittorent	√
Aria 2	√
Terra Search	√
Deduplication	√
Web Server	√
Clam Antivirus	√
EMBY	√
Multi Media Server	√
Plex Media Server	√
Docker Manager	√
Snapshot	√



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