

# CNS2-FC

Network Attached Storage with Fibre Channel and iSCSI

**CURTISS-  
WRIGHT**

CURTISSWRIGHTDS.COM



## Key Features

- Network attached storage (NAS)
- FC target drive emulation
- 2 x 1 GbE ports
- 2 x 2 Gbps FC ports
- FIPS 140-2 validated AES256-bit encryptors
- iSCSI protocol support
- Removable storage modules

## Applications

- Legacy Fibre Channel sensor applications
- Accessing Fibre Channel data with iSCSI
- Replacing obsolete Fibre Channel disks
- SWaP reduction by eliminating disks in each client
- ISR data protection

## Overview

The flexible CNS2-FC supports Network File Server (NFS), Common Internet File System (CIFS), File Transfer Protocol (FTP), Hypertext Transfer Protocol (HTTP), Fibre Channel (FC), and Internet Small Computer System Interface (iSCSI) protocols making it ideal for sharing critical data in a deployed network. The CNS2-FC is a modular system that consists of the 1/2 ATR CNS2-FC chassis and one or two, second generation, Flash Storage Modules (FSM-2) that plug into the CNS2-FC backplane with 100k insertion cycle connectors. Without any tools, the FSM-2 modules are easily removed from the CNS2-FC chassis for transport to a ground station. This rugged NAS/FC/iSCSI solution is designed for use in a broad range of both manned and unmanned ground, air, and sea vehicles.

The CNS2-FC stores data on the two removable FSM-2 modules. With 1.9 TB of usable storage space each, the FSM-2 can securely store large amounts of data on long missions. The FSM-2 modules are easily removed even for pilots wearing gloves. The FIPS 140-2 validated AES256-bit encryptors are designed to protect your sensitive data-at-rest whether in operation or in transport.

## Fibre Channel Target Drive with FIPS 140-2 Validated Encryption

The CNS2-FC is configured with two FC ports. These front panel connections support 1 or 2 Gbps FC protocol. Configured as an FC target drive, the CNS2-FC responds to standard FC storage commands just like any FC disk. Mission computers can count on the CNS2-FC to operate in rugged deployed applications as both a NAS and as a FC target drive. The FSM-2 solid state storage is easily partitioned between FC (block) and NAS (file) data. With a special command, the partition can be moved to change the percent available to each function.

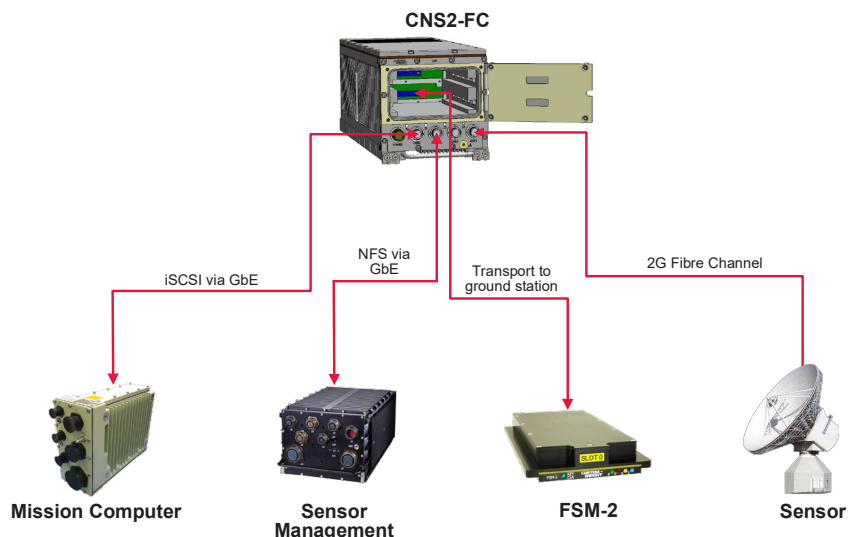


Figure 1: CNS2-FC bridging different networks

## Specifications

### Physical

- Dimensions (H x W x D): ½ ATR compatible
  - + 4.844 x 4.88 x 12.62" (123 x 124 x 321 mm)
- Weight
  - + 1 x FSM-2: 12.1 lb
  - + 2 x FSM-2: 13.3 lb

### Power

- 1 x FSM-2: 59W
- 2 x FSM-2: 69W

## Environmental

- Temperature
  - + Operating: -40 to +71°C
  - + Storage: -40 to +85°C
- Humidity:
  - + Storage: 5 to 95% (non-condensing)
  - + Operation: 5 to 95% (non-condensing)
- Power supply: MIL-STD-704F
- Altitude: 50,000 ft, operating
- Vibration
  - + Sine:
    - › 10.0 G peak, 15-2k Hz sine wave
    - › 1.0 G peak, 5-300 Hz sine wave, 0.5 octave/minute sweep rate
  - + Random:
    - › 0.1 g<sup>2</sup>/Hz, 15-2k Hz, flat PSD profile for each of the three mutually perpendicular axes
    - › 1.2 G RMS, 5-500 Hz, flat PSD profile for each of three mutually perpendicular axes
- Shock: 40 G, 11 ms duration, half sine wave shock pulse
- EMI/EMC: MIL-STD-461F

## Ordering Information

- Part numbers:
  - + VS-CNS2-FC
  - + VS-FSM2048M-F2
  - + VS-CNSTRAY-00

## iSCSI Protocol

In addition to NAS and FC protocols, the CNS2-FC also supports iSCSI protocol, acting like an iSCSI target. The CNS2-FC can receive iSCSI-based data via either of the two Ethernet ports. This additional input capability makes the CNS2-FC a great choice for system architectures based on Ethernet. FC data can be stored on the FSM-2 and can be read by iSCSI clients on the network. This features provides tremendous flexibility, making critical data available to a variety of clients.

## Reduced SWaP/Maximum Storage

In the most advanced rugged, deployed applications, size, weight and power (SWaP) are key factors. The CNS2-FC in its fully rugged configuration offers unique SWaP characteristics. At 4.844" H x 4.88" W x 12.62" D, the CNS2-FC is a tightly packaged 1/2 ATR system that can fit into the most compact and demanding mission recorder applications.

Also, the CNS2-FC support PXE protocol. So local or direct-attached disk drives do not have to be installed in each network client. Instead, those clients can ping the CNS2-FC which will send the necessary boot files (operating system, application software). If you have many clients in the system, considerable weight savings can be achieved and every pound reduced will lengthen the mission time and reduce long term program cost.

## Scalable, Rugged, Secure Storage

The CNS2-FC is designed to hold up to two FSM-2 modules. The FSM-2 is a rugged high-capacity, solid-state SATA storage cartridge with FIPS 140-2 Validated Encryption. The FSM-2 is easily removed from the deployed CNS2-FC and transported or shipped per your program requirements and re-installed in a ground station CNS2-FC for post mission analysis. The CNS2-FC and FSM-2 combine to provide a secure solution for sharing and protecting critical data on deployed applications.

The FSM-2 has 100k insertion cycle blind-mate connectors. For deployed applications, the removable memory will be taken from the ground station to the mobile vehicle and back frequently. The 100k connectors provide critical reliability for long program life.

## Secure Data-at-Rest

The FSM-2 provides data encryption capabilities to secure your critical data. Data-at-rest security concerns are addressed by powerful AES256-bit encryption at the drive level. The AES256-bit encryption hardware is NIST certified with pre-defined key management modes. Keys can be generated internally or provide externally and can be stored in EEPROM. The FSM-2 includes several methods to initiate a zeroize of the AES keys in order to protect your data quickly.



Figure 2: FSM-2