

# User Guide

## SR10-FDD

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Arnouse Digital Devices Corp.

1979 Marcus Ave, Suite E140

Lake Success, NY 11042

(516)673-4444

[www.addc.com](http://www.addc.com)



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Arnouse Digital Devices Corp. 1979 Marcus Ave, Suite E140, Lake Success, NY 11042  
(516)673-4444, [www.addc.com](http://www.addc.com)

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# Table of Contents

1	Introduction .....	6
1.1	Purpose .....	5
1.2	Scope .....	5
1.3	System Organization .....	5
2	System Description .....	7
2.1	Key Features .....	7
2.2	System Inventory.....	7
2.3	Environment .....	10
2.4	System Operations.....	10
3	Installing, Starting and Stopping the System .....	11
3.1	Installing the System .....	11
3.2	Installing the SR10-FDD Into a Rack.....	11
3.3	Installing System Components .....	11
3.4	Networking the System .....	17
4	Step by Step Operating Instructions.....	19
4.1	SR10-FDD Overview .....	19
4.2	SR10 Modules.....	20
5	ROMWare Lite Software .....	22
5.1	Login .....	22
5.2	Main Web GUI Screen Overview.....	22
5.3	PC Card Power Control and Monitoring .....	22
5.4	Front Panel Touchscreen Overview .....	22

# List of Figures

Figure 1- SR10-FDD System Block Diagram .....	7
Figure 2- SR10-FDD Chassis.....	9
Figure 3- Cable Management Arm .....	9
Figure 4- 10Gbps SFP+ Cables .....	9
Figure 5- AC Power Cord .....	9
Figure 6- AC/DC Power Supply.....	9
Figure 7- BioDigitalPC® .....	9
Figure 8- SR10-FDD Rear Panel .....	12
Figure 9- PC Card Fully Inserted and Locked .....	12
Figure 10- PC Card Track Setup .....	12
Figure 11- PC Card Track .....	13
Figure 12- PC Card Locking Mechanism.....	13
Figure 13- SR10 PC Card Unlocking.....	14
Figure 14- SR10 PC Card Ejection.....	14
Figure 15- PC Card ejection lever position.....	16
Figure 16- KVM PCB Stack Modules .....	16
Figure 17- KVM PCB Power Cable .....	16
Figure 18- SR10-FDD AC/DC Power Supply .....	16
Figure 19- SR10-FDD Switch Management Ports.....	17
Figure 20- SR10-FDD Ethernet Networking Ports.....	17
Figure 21- SR10-FDD Ethernet Networking Ports (Recommended Configuration).....	18
Figure 22- SR10-FDD Front Panel.....	18
Figure 23- SR10-FDD Front Panel Controls and Indicators .....	19
Figure 24- SR10-FDD Rear Panel Connections.....	19
Figure 25- SR10 Block Diagram.....	20
Figure 26- SR10-FDD Front Panel.....	21

# 1 Introduction

## 1.1 Purpose

The purpose of this document is to define the functionality, operation, and maintenance of the SR10-FDD Data Center. This document serves as the sole reference for the system functionality at time of delivery. Any change to the Functional Specifications will require agreement via the change control process between the user and ADDC. The SR10-FDD was designed to provide long range (up to 24 km) remote operation via fiber optic cable KVM of up to 10 BioDigitalPC® computers.

## 1.2 Scope

*Summarize the purpose and contents of this guide and describe any security or privacy considerations associated with its use.*

This guide has 3 main sections, system functional specifications, operation, and maintenance. The maintenance section requires that only qualified technicians gain access to the internal components of the system. The system's power management controls via the front panel touch screen or the ROMWare GUI are PIN and password protected for security.

## 1.3 System Organization

Figure 1 is the block diagram for the SR10-FDD system. The system consists of the following main components:

- SR10 Module
- AC-DC 12V Power Supply (main power source for SR10 Module and fans)
- DC-DC 12V-5V Converter (power for all KVM modules)
- ROMWARE Lite Module (provides remote power control of each individual PC Card)
- ROMWARE Lite Software (provides touch screen control and/or web GUI remote power control)

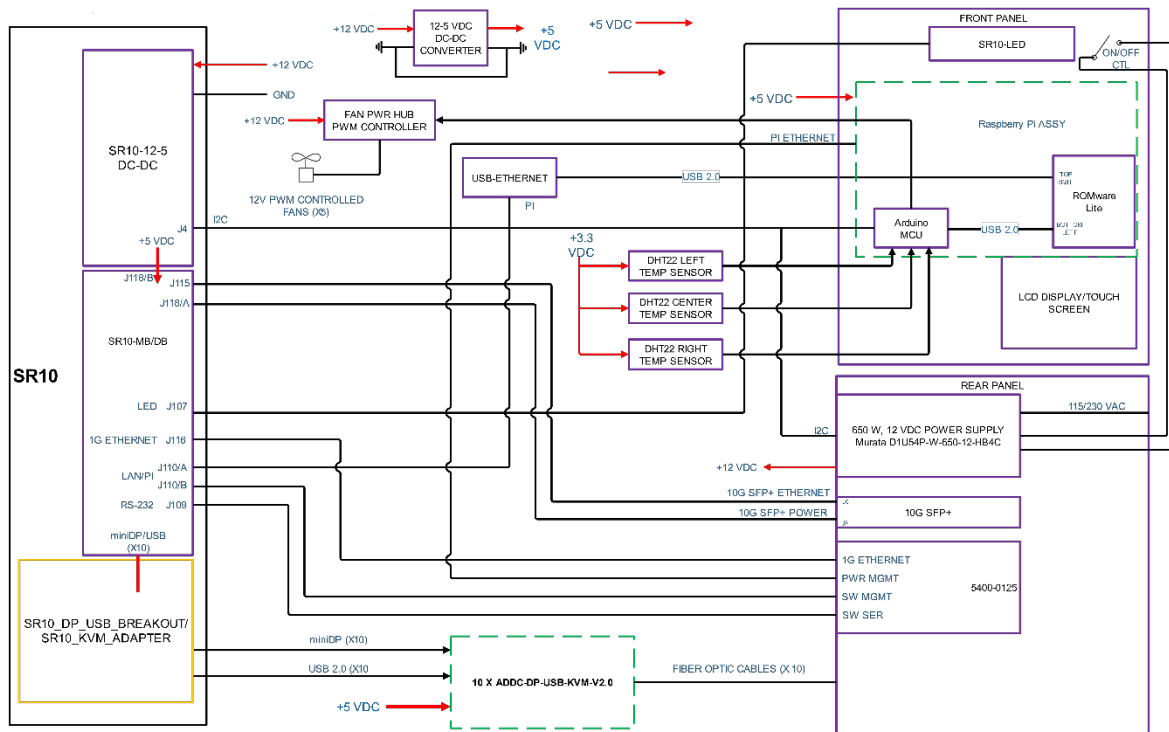


Figure 1- SR10-FDD System Block Diagram

## 2 System Description

The SR10-FDD combines the power of the ADDC SR10 module with the Made in the USA, long distance, fiber KVM (Keyboard, Video, Mouse) terminal for extraordinary capability. The SR10 module specifically designed to be integrated into a SR10-FDD features 10 separate and distinct computers with USB and video delivered through fiber KVM. Each computer is connected to a high-speed layer 2 managed switch through 3 physical 1 GbE NICs. The embedded switch manages the individual NICs and has two 10G SFP+ trunk ports. Serial and HTTP based switch management is included. Individual auto and remote computer power control.

### 2.1 Key Features

The SR10-FDD System provides the following key features:

- 10 Separate BioDigitalPC® Cards that can be easily remove and replaced for ease of maintenance and upgradeability.
- Remote power control for each individual PC Card via a web GUI to allow remote resetting of the PC Card.
- Each PC Card has its own KVM over fiber adapter to allow an additional remote operation of the PC Card and its software applications.

### 2.2 System Inventory

The SR10-FDD system ships with the following components:

- SR10-FDD Chassis (Figure 2)
- 1 each Cable Management Arm (Figure 3)
- 2 each 10Gbps SFP+ Cables (Figure 4)
- 1 each AC power Cord (Figure 5)
- 1 each AC/DC Power Supply (Figure 6)
- BioDigitalPC® Cards (Check Invoice for Quantity) (Figure 7)





Figure 2- SR10-FDD Chassis



Figure 3- Cable Management Arm



Figure 4- 10Gbps SFP+ Cables



Figure 5- AC Power Cord



Figure 6- AC/DC Power Supply



Figure 7- BioDigitalPC®

## 2.3 Environment

The system is intended to be used in an environmentally controlled and secured facility. The following system components are required for installation and remote-control operation.

- Rack Slides (not provided)
- Remote KVM Transceiver Unit (purchased separately)
- Fiber Optic cable (length determined by the end user)
- Laptop or PC with an Ethernet NIC for Remote Control Operation
- Laptop or PC with a Serial Communications Port for Switch Management
- Routers with 10G SFP+ Port

## 2.4 System Operations

The SR10-FDD can operate unattended once is properly installed and configured for remote KVM operation. The remote users can have as much control of each PC Card as allowed by the system administrator. Each user may be able to login and logout of the PC Card and operate applications also as allowed by the System Administrator. However, System power controls and switch management functions are not available to the user and must be accomplished from a PC or laptop connected to the power and switch management ports on the rear panel of the unit. These functions are password protected and available only to the System Administrator.

## 3 Installing, Starting and Stopping the System

### 3.1 Installing the System

When installing the SR10-FDD into a rack, the selected location should meet environmental standards as described below.

#### **Rack Space and Airflow Considerations**

To allow for adequate airflow, technicians should observe the following space and airflow requirements when deciding where to install a rack.

- Leave a minimum clearance of 36in (91.4cm) in front of the rack.
- Leave a minimum clearance of 20in (50.8cm) behind the rack.

#### **Temperature Considerations**

Your SR10-FDD is designed to operate at room temperature with its self-contained cooling.

#### **Power Considerations**

When properly configured and installed the SR10-FDD can draw up to 400 Watts (200 Watts on average) depending on the number, load, and version of the BioDigitalPC<sup>®</sup>s used.

- To prevent improper cooling of equipment, do not block the fans.
- Clean the front fan filters periodically (at least once a month).
- If the system is intended to operate from an Uninterrupted Power Supply (UPS) power source, ensure that the UPS unit has enough capacity to run the system.

### 3.2 Installing the SR10-FDD into a rack

The SR10-FDD does not ship with rack rails. The rails must be provided by the end user; follow the rail and rack manufacturers installation instructions.

### 3.3 Installing System Components

BioDigitalPC<sup>®</sup>s are hot-pluggable, meaning technicians do not need to remove power to begin adding or removing them.

**Note:** Only trained technicians are authorized to work inside the SR10-FDD System and access any of the components inside the system.

### 3.3.1 Removing the SR10-FDD Top Cover

To add or remove BioDigitalPC®s, the SR10-FDD chassis must be pulled out of the rack, and the SR10-FDD's Top Cover needs to be removed temporarily.

**Warning: The SR10-FDD can be running while installing new server cards. However, caution must be taken to prevent damage to the equipment as exposed circuit components may short if any metal objects are inadvertently dropped inside the chassis. Future versions of all electronic components will be conformal coated to prevent this from happening.**



Figure 8- SR10-FDD Rear Panel

- Step 1- Remove the center Phillips head screw.
- Step 2- Slide the top cover to the rear and lift to release the cover from the 4 side locking pins.

### 3.3.2 Installing a BioDigitalPC®



Figure 9- PC Card Fully Inserted and locked

- Step 1- Make the PC Card ejection lever is perpendicular to the system cover.
- Step 2- Make sure locking tab is unlocked.

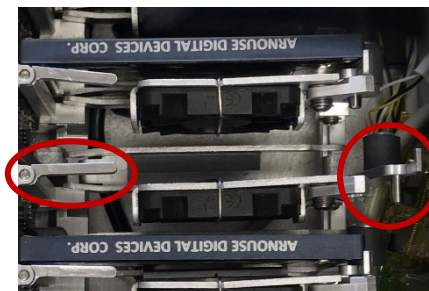


Figure 10- PC Card Track Setup

- Step 3- Insert Card with “Arnouse Digital Devices Corp.” facing upwards and the connector of the card is facing towards the PC Card ejection lever. When inserting the card, place it between the two horizontal metal bars, ensuring the card is going to be aligned properly.

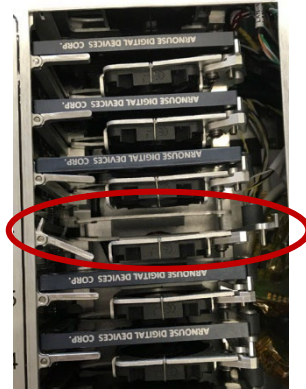


Figure 11- PC Card Track

- Step 4- Once the card is in between the two horizontal bars, locate the small locking tab and push it in towards the PC Card until the tab locks into place.

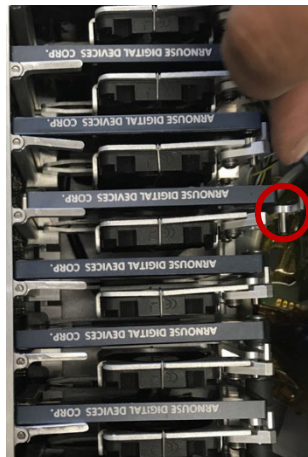


Figure 12- PC Card Locking Mechanism

### 3.3.3 Removing a BioDigitalPC®

- Step 1- Find the locking tab located to the right of the card slot. Unlock the locking tab.

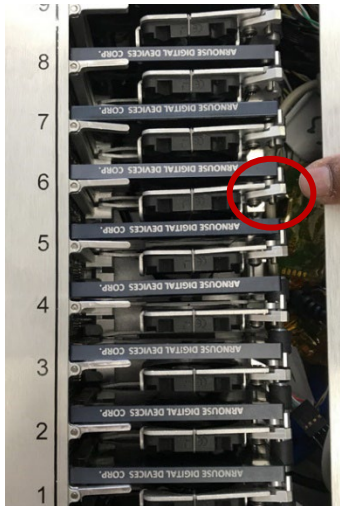


Figure 13- SR10 PC Card Unlocking

- Step 2- Pull the PC Card ejection lever forward towards you, you should feel the card pop out of the connector.

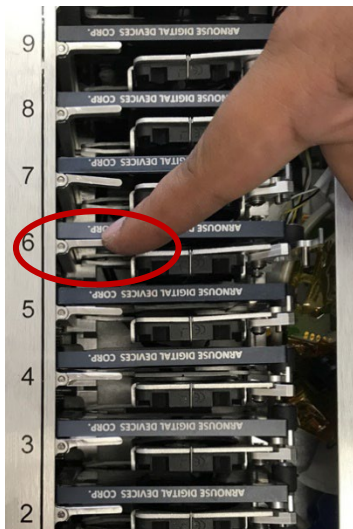


Figure 14- SR10 PC Card Ejection



- Step 3- Reset the ejection lever to the original position to make the PC Card removal easier.

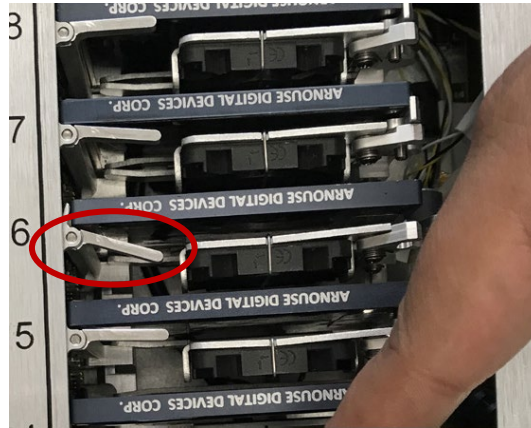


Figure 15- PC Card ejection lever position

### 3.3.4 Replacing a KVM Over Fiber PCB Stack Module

- Disconnect all cables (USB, miniDP, 5V power, and Fiber Optic)
- Remove 4 Phillips pan head 4-40 X ¼" screws located at the bottom of each corner of the module (see Figure 12).
- Remove the KVM PCB Stack Module from the chassis.
- Install the KVM PCB Stack Module in reverse order as removal.

**Warning: The 5V power cable must be installed with the proper polarity (see Figure 13). Connecting the 5V power cable with reverse polarity will severely damage the KVM PCB.**

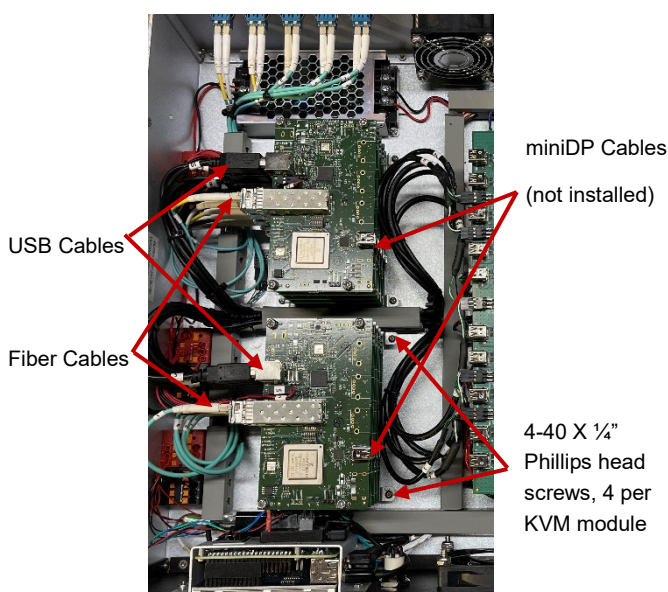


Figure 16- KVM PCB Stack Modules

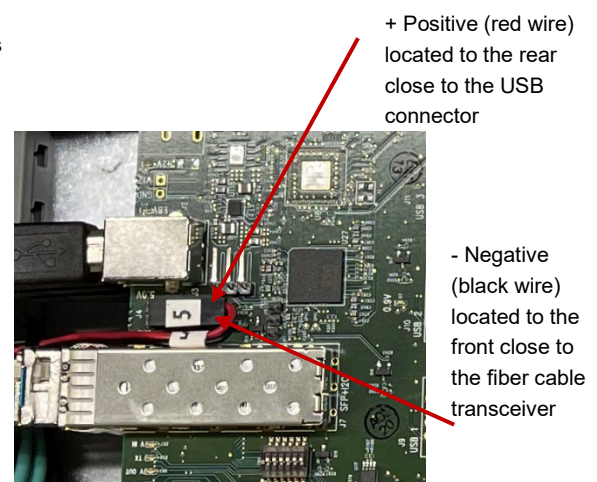


Figure 17- KVM PCB Power Cable

### 3.3.5 Replacing the SR10-FDD Top Cover

Once complete, a technician should replace the SR10-FDD top cover following the 2-step removal process in reverse order.

### 3.3.6 Installing the AC/DC Power Supply

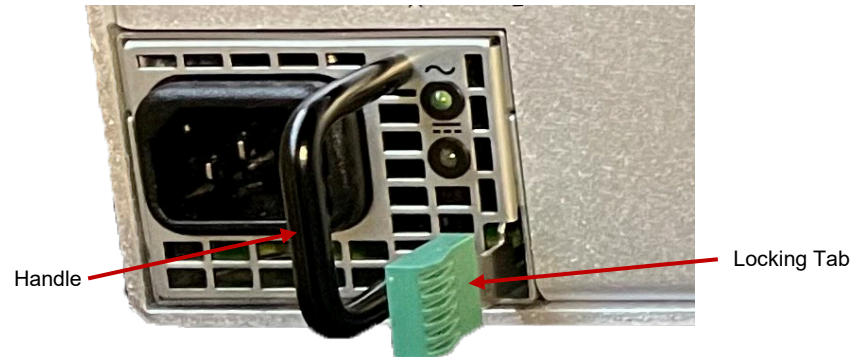


Figure 18- SR10-FDD AC/DC Power Supply

- Step 1- Push the AC power supply straight into the power supply cavity. Ensure the power supply is oriented properly and that the locking tab engages inside the cavity.
- Step 2- Connect the AC power cord into the power supply and connect it to a 20 Amp AC outlet. The green power “OK” LED should illuminate.

### 3.3.7 Removing the SR10-FDD Power Supply

- Refer to Figure 14.
- Step 1- Turn off power to the system and disconnect the AC power cord.
- Step 2- Push the locking tab to the left to release the power supply.
- Step 3- Pull on the power supply handle to remove it.



## 3.4 Networking the system

### 3.4.1 Minimal/Testing Equipment

- 1 each 10/100 Ethernet Cable
- 1 each Cisco compatible RS232 Serial Communications Cable
- 1 each External Computer (e.g., a laptop)



Figure 19- SR10-FDD Switch Management Ports

### 3.4.2 1Gbps Networking Schema

- 1 each 10/100 Ethernet Cable
- 1 each Cisco compatible RS232 Serial Communications Cable
- 1 each 10/100/1000 Ethernet Cable
- 1 each 10 port (or more) 10/100/1000 Ethernet Switch



Figure 20- SR10-FDD Ethernet Networking Ports

### 3.4.3 10Gbps Networking (with ROMWare Switch Management)

- This is the recommended SR10-FDD Networking Configuration
- 1 each 10/100 Ethernet Cable
- 1 each Cisco compatible RS232 Communications Cable
- 1 each 4 port (or more) 10/100 Ethernet Switch
- 1 or 2 10Gbps SFP+ Cables



Figure 21- SR10-FDD Ethernet Networking Ports (Recommended Configuration)

### 3.4.4 SR10-FDD Power ON and OFF

- Connect SR10-FDD to a 20 Amp AC power receptacle.
- Press the ON/OFF Power Button on the front panel.
- The blue ring LED on the power button should illuminate.
- Pressing the power button again will turn OFF the system.



Figure 22- SR10-FDD Front Panel

## 4 Step by Step Operating Instructions

This section outlines the step-by-step procedure for system power ON/OFF and remote-control operation via the ROMWare Lite GUI.

### 4.1 SR10-FDD Overview

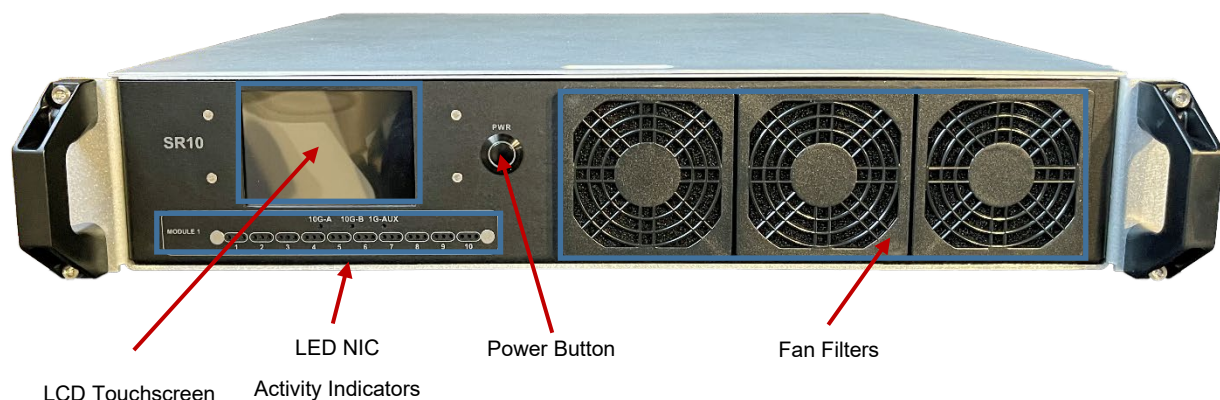


Figure 23- SR10-FDD Front Panel Controls and Indicators

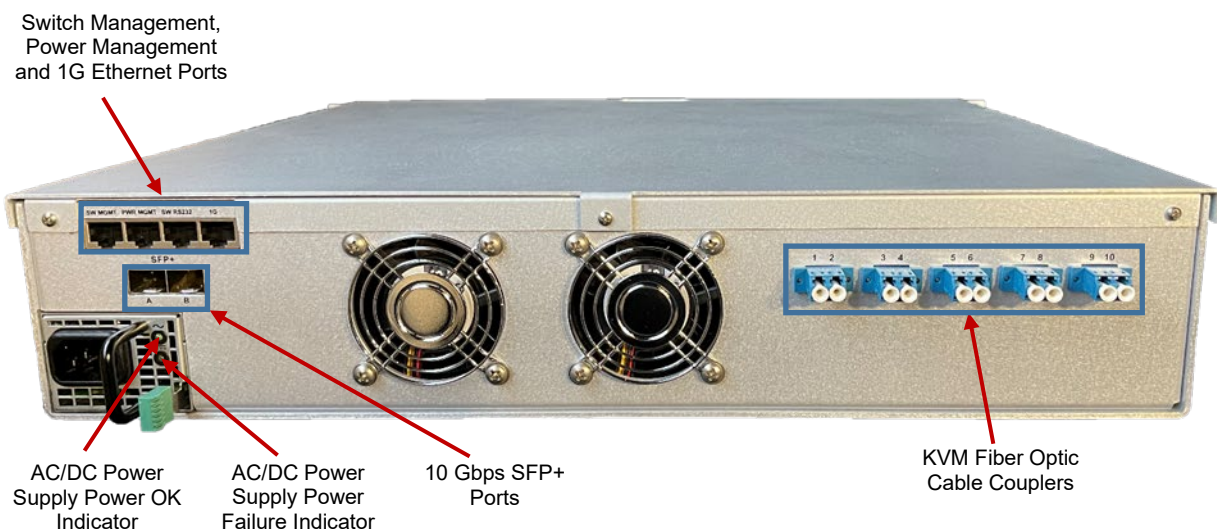


Figure 24- SR10-FDD Rear Panel Connections

## 4.2 SR10 Modules

As shown in the [Section 3](#), the SR10-FDD consists of a single SR-10 Module and 10 KVM over fiber PCBs. The SR-10 Module contains 10 BioDigitalPC® slots, each having three 1Gbps NICs attached to an integrated switch. The integrated switch has two SFP+ 10Gbps connectors and one 1Gbps RJ-45 connector broken out to the rear panel of the SR10-FDD (See [Section 3.4](#) for additional information). Each SR-10's BioDigitalPC® power control is managed via the SR10-FDD's Web-based management program called ROMWare Lite (See [Section 5](#) for additional information).

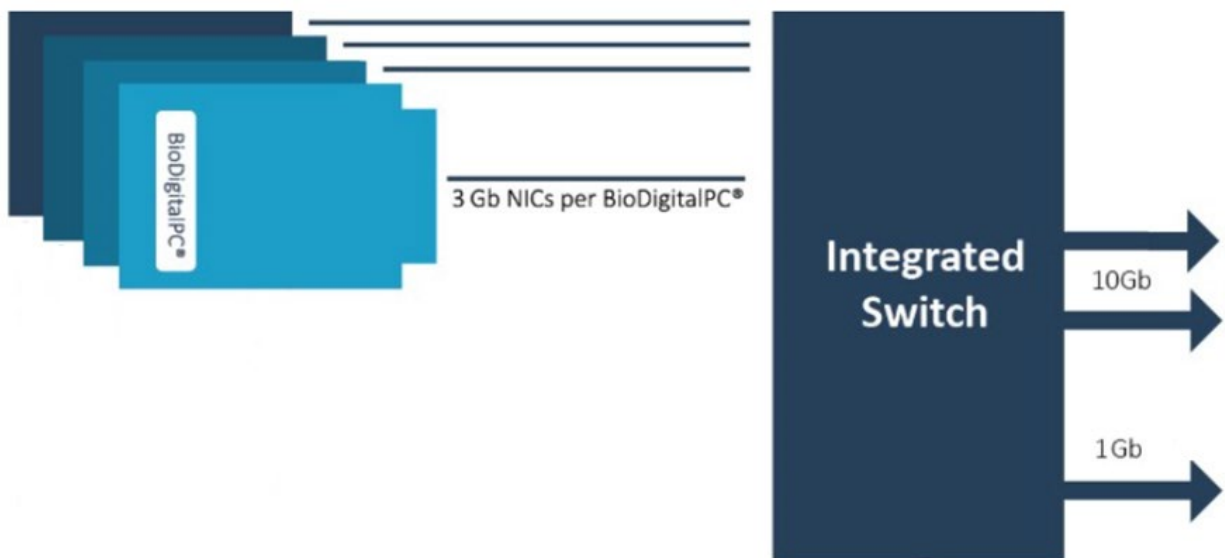


Figure 25- SR10 Block Diagram



## 4.2.1 Front Panel

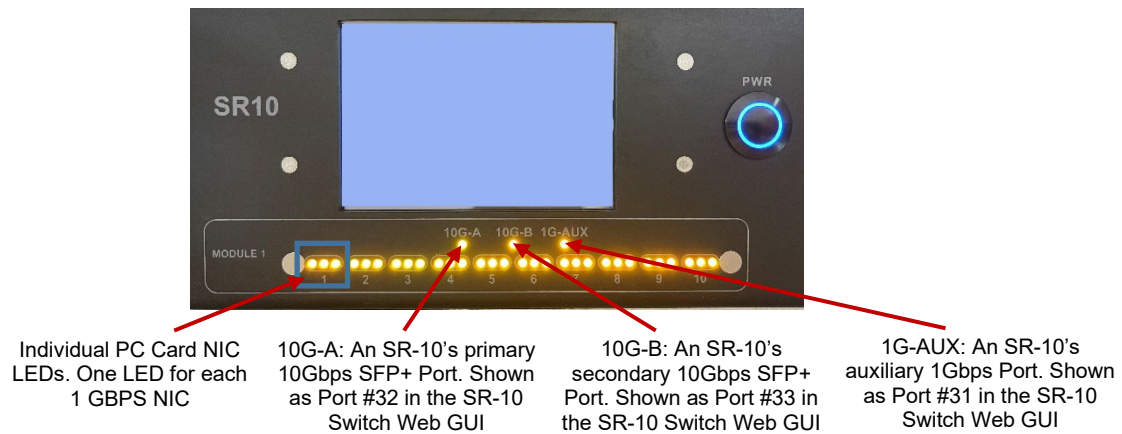


Figure 26- SR10-FDD Front Panel

## 4.2.2 Rear Panel

- Refer to Figure 20
- The Power OK green LED on the power supply will illuminate as soon as the AC power cord is connected to a 20 Amp AC power receptacle.
- The Fault amber LED will illuminate if there is a fault with the power supply. Refer to the Murata D1U54P-W-650-12-HB4C power supply manual for additional information.
- The 2 rear 60mm fans pull hot air out of the system and should be unobstructed.

## 5 ROMWare Lite Software

The ROMWare Lite software is embedded in the SR10-FDD and all that is required for its operation is a web browser (Chrome is recommended).

### 5.1 Login



← → ↻ ⚠ Not secure | 10.0.1.254/login/

**ADDCC**  
ARNOUSE DIGITAL DEVICES CORP

SR-10

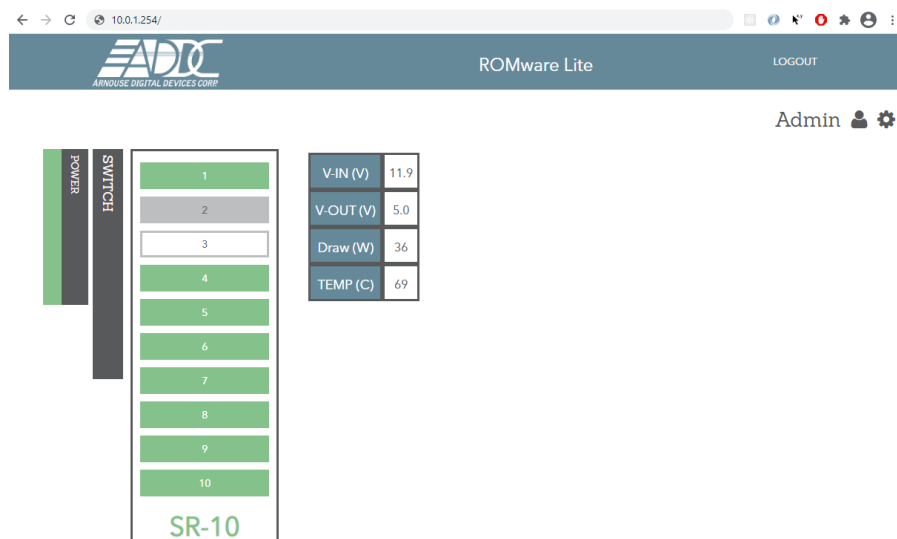
Username

Password

LOGIN

The web interface for ROMWare Lite asks for credentials to log in and begin management and/or monitoring of your SR10-FDD. Users are supplied with administrative credentials that have been factory set. Only one admin can be logged in at once.

### 5.2 Main Web GUI Screen Overview



← → ↻ 10.0.1.254/

**ADDCC**  
ARNOUSE DIGITAL DEVICES CORP

ROMware Lite

LOGOUT

Admin

POWER SWITCH

1 2 3 4 5 6 7 8 9 10

SR-10

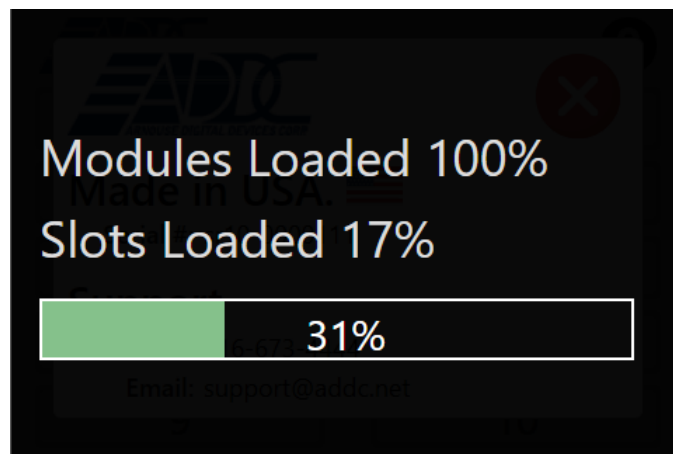
V-IN (V)	11.9
V-OUT (V)	5.0
Draw (W)	36
TEMP (C)	69

## 5.3 PC Card Power Control and Monitoring



## 5.4 Front Panel Touchscreen Overview

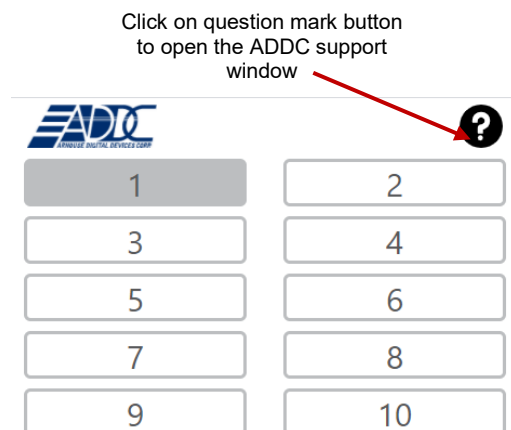
- System Startup Screen – Allow 3-4 minutes for system to boot up.



- ADDC Support Screen – This screen is displayed right after the system boots up and will be closed after ten seconds or it can also be closed by clicking on the red button.



- PC Card Slots Power Status Screen – This screen is displayed after the ADDC support screen is closed. WHITE indicates there is no PC Card installed, GRAY indicates there is a PC Card installed but is turned OFF, GREEN indicates that there is a PC Card installed and turned ON.



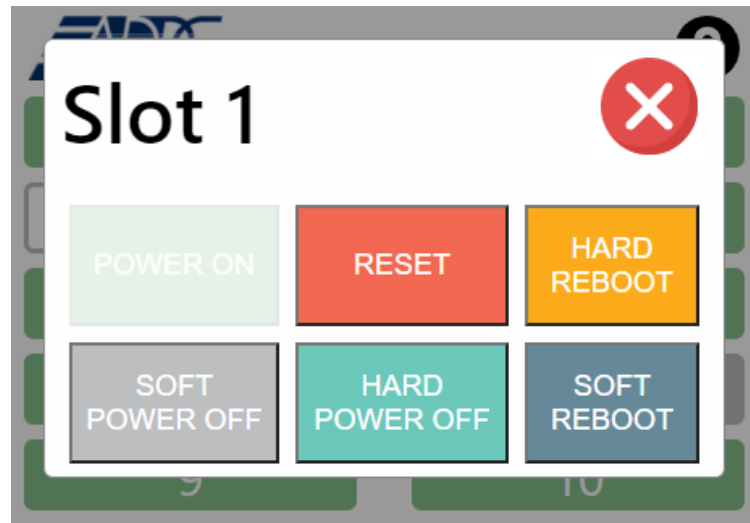
PC Card installed but turned OFF on slot #1, no PC Cards installed on slots 2-10



PC Card installed and turned ON on slot #1, no PC Cards installed on slots 2-10. Notice that corresponding NIC LEDs are illuminated indicating that the PC Card's NICs are connected to the switch at 1G speeds. If the LED illuminates in yellow, that is an indication that the NIC is connected at 10/100 speeds.



- PC Card Power Control Screen – Clicking on any slot will bring up the power control screen.



POWER ON	Powers ON the BioDigitalPC® Server card.
HARD POWER OFF	Immediately removes power from the BioDigitalPC® Server card.
SOFT POWER OFF	Sends a signal to the BioDigitalPC® Server card to shut down gracefully.
HARD REBOOT	Removes power from the BioDigitalPC® Server card, waits 30 seconds and then applies power back to the BioDigitalPC® Server card
RESET	Removes power from the remote power control. Do not use this unless specifically instructed to.
SOFT REBOOT	Gracefully reboots the BioDigitalPC® Server card.

- A lock screen can be activated from the web interface. By default, the lock screen is disabled; however, it can be enabled from ROMWare Lite. When enabled, the lock screen will require you to enter the default pin number 123123 to access the PC Card Slots Power Status Screen. It is recommended that you change the default pin number, it can be changed from ROMWare Lite.

.....

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DEL

0

ENT

- When the lock screen is enabled, there will be a logout button next to the question mark button; the logout button will lock the screen. There is a default session timeout of six minutes, if there is no user activity in six minutes the session will end, and the screen will be locked. The default session timeout can be changed from ROMWare Lite.





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Click the logout button to lock the screen