

# SIMREX Corporation DataMover SS Synchronous

Instruction Manual



**Synchronous Data Radio**

***Firmware Release 0.99.9***

SIMREX *MAN.DMSS-SYNC*, Rev 1.0  
AUGUST 2009

**SIMREX Corporation**  
*Your Trusted Wireless Solution Provider*  
[www.simrex.com](http://www.simrex.com)



# DataMover SS 900 Synchronous rev 1.0 SIMREX Corporation

## ***Introduction***

The *SIMREX Corporation* DataMover SS-900-SYNC is a wireless radio device that is used in any data application that uses equipment that communicates with synchronous RS-232 in SDLC format.

There are five (5) RJ-12 connectors on the front of the unit:

1. **SYNC RS-232** – The port the connected synchronous device attaches to.
2. **TERMINAL** (6-pin RJ-12) – Used for configuring the DM SS-900-SYNC radio.
3. **RADIO DIAG** (6-pin RJ-12) – This port is used for configuring the Radio system.
4. **FLASH UPDATE** (6-pin RJ-12) – firmware upgrade using proprietary flash upgrade cable (optional).
5. **RADIO** - This connector is not used in the field. It is for factory use only.

**DataMover SS 900 Synchronous**  
**rev 1.0**  
SIMREX Corporation

***LED Indicators***

<b>PWR LED</b>	Indicates voltage at the output of the internal 5V regulator.
<b>RF LED</b>	On a unit configured as a radio master, this LED should always be on. It shows that the master is transmitting. On a unit configured as a remote radio, the RF LED shows that the remote has associated with the master and is active on the radio network.
<b>RX LED</b>	This LED flashes on, then off, for each completed message received over the radio link.
<b>SYNC LED</b>	This LED flashes on, then off, for each completed message received on the synchronous serial port.

The RX & SYNC LED's show when data is received, only not transmitted. In this system, it is assumed that when a complete message is received over either transport method, it is retransmitted over the other transport.

# DataMover SS 900 Synchronous rev 1.0

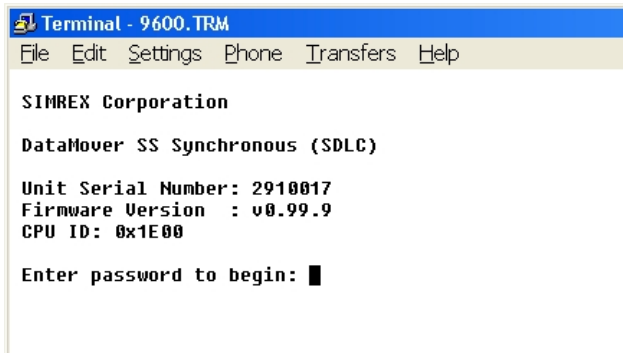
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## *Configuration*

Any terminal program can be used to configure the DataMover Synchronous. Windows HyperTerminal, for example, is a common choice.

The configuration port settings on the DMSS Sync default to 9,600 baud, 8 data bits, no parity, 1 stop bit, or more commonly seen as 9600,8,N,1. After setting up the terminal program, apply power to the DM Sync. The LED on the front panel labeled PWR indicates that DC power is on.

With a terminal program running and the CONFIG port connected, if the terminal program is set up correctly, you will see the screen below.



```
Terminal - 9600.TRM
File Edit Settings Phone Transfers Help

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DataMover SS Synchronous (SDLC)

Unit Serial Number: 2910017
Firmware Version : v0.99.9
CPU ID: 0x1E00

Enter password to begin: █
```

This screen lists the product name, serial number, firmware revision and it identifies the CPU used inside. These items are all needed if you need to contact Simrex for support for any reason.

# DataMover SS 900 Synchronous rev 1.0

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This information is only shown as a sign-on message when the unit is powered up.

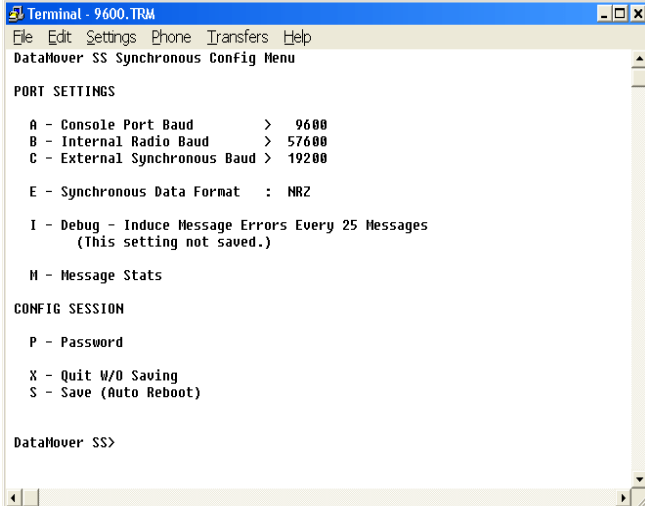
The default password is four nine's..... 9999

Enter the password and press enter.

There are only a few settings in the DM SS Sync.

Note, there is no option for whether the DM-SS Synch outputs the synchronous TX & RX clock. The DM SS Synch can only output the clock signal. It does not accept a clock from the connected device.

(Note: In the main menu, items with a > following it indicate there is a sub-menu if that letter is selected. Items that have a : following it indicate that the setting is changed by selecting the letter and pressing return.)



```
Terminal - 9600.TRM
File Edit Settings Phone Transfers Help
DataMover SS Synchronous Config Menu

PORT SETTINGS

A - Console Port Baud      > 9600
B - Internal Radio Baud   > 57600
C - External Synchronous Baud > 19200

E - Synchronous Data Format : NRZ

I - Debug - Induce Message Errors Every 25 Messages
  (This setting not saved.)

M - Message Stats

CONFIG SESSION

P - Password

X - Quit W/O Saving
S - Save (Auto Reboot)

DataMover SS>
```

**DataMover SS 900 Synchronous**  
**rev 1.0**  
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***BAUD RATES***

Valid baud rates are 1200, 2400, 4800, 19200, 38400, and 57600.

A - Baud rate for the configuration port  
(Terminal/Console)

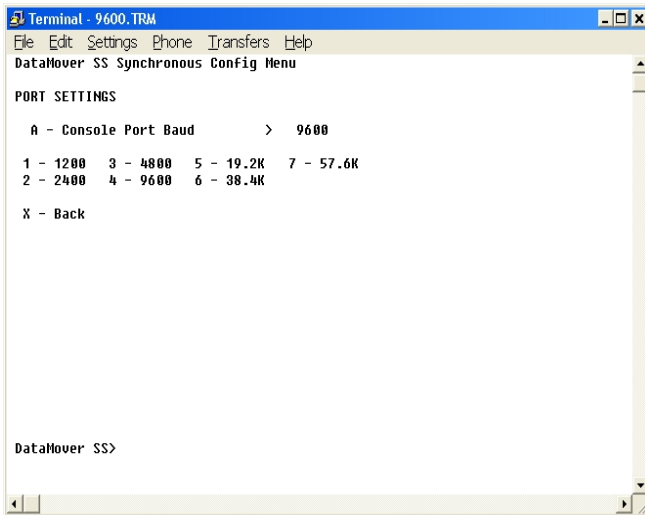
which the radio the  
**BAUD**

B - The internal radio baud rate is the speed at the CPU inside communicates to the module inside. This baud rate must be same between this setting and the setting of the radio module itself.

C - This is the baud rate for the connected synchronous device.

To change any of these settings, select the corresponding menu letter and press enter. You will be presented with the following baud rate menu.

# DataMover SS 900 Synchronous rev 1.0 SIMREX Corporation



Press the letter for the desired speed, then press enter. If the correct selection has been made, enter **X** and press return to get back to the main menu.

The same menu is shown for all three different baud settings.

## ***DATA FORMAT***

The only valid selections are NRZ and NRZI. Most devices are NRZ.

```
E - Synchronous Data Format : NRZ
```

To switch between NRZ and NRZI, press **E**, then press enter. This toggles the setting.



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## ***DEBUG SETTING***

This feature is only used for debugging purposes.

```
I - Debug - Induce Message Errors Every 25 Messages  
(This setting not saved.)
```

This setting is NEVER saved, but, if it is used, you must remember to turn it off, either by explicitly turning it off, or by power cycling the radio.

What this function does is introduce errors in the data every 25 messages sent. These errors are over the radio link only. It will alternate between sending a message that is one byte short, and then one byte long. These 'bad' messages are not passed through to the connected device, as the over-the-air protocol includes CRC and length checking.

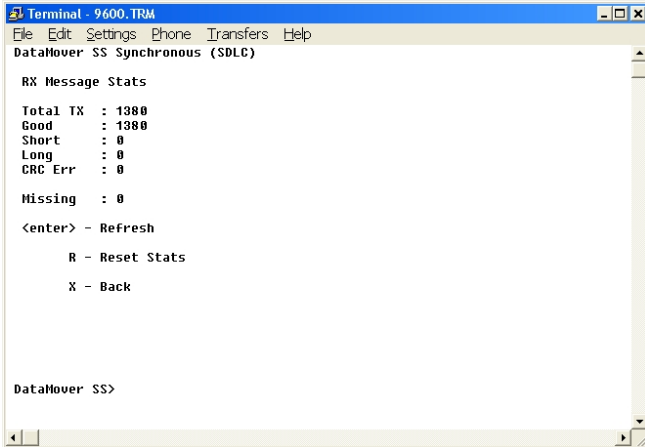
This function is mainly used for debugging the radio link itself.

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## ***MESSAGE STATS***

H - Message Stats

This selection will display the message stat screen.



```
Terminal - 9600.TRM
File Edit Settings Phone Transfers Help
DataMover SS Synchronous (SDLC)

RX Message Stats

Total TX : 1380
Good : 1380
Short : 0
Long : 0
CRC Err : 0
Missing : 0

<enter> - Refresh

R - Reset Stats
X - Back

DataMover SS>
```

Again, the assumption is made that a received message will be retransmitted on the other transport method, so these stats only refer to RECEIVED messages over the RADIO link. If you have enabled '**Induce Errors**', these errors will be seen here, but only on the unit that is receiving from the one with errors enabled.

While in this screen, press **enter** to refresh the stats.

Press **R**, then **enter** to reset all values to zero.

Press **X**, then **enter** to return to the main menu.

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## **PASSWORD**

As mentioned previously, the default password is 9999.  
This can be changed.

```
P - Password
```

Select **P** from the menu, press **enter**.

```
P - Password
Enter the new password below.
Only alphanumeric characters are allowed.
Password must be between 5 and 20 characters
(Enter a single 'x' to cancel.)

New Password: █
```

Enter the new password. Password requirements are:

- Only Alphanumeric characters: 0-1 a-z A-Z
- The new length must be between 5 and 20 characters inclusive, even though the default password only has 4 characters.

Press **enter**.

```
P - Password
Enter the new password below.
Only alphanumeric characters are allowed.
Password must be between 5 and 20 characters
(Enter a single 'x' to cancel.)

New Password: *****
Confirm Password: █
```

Re-enter the new password to confirm. Press **enter**.

```
P - Password (Changed)
X - Quit W/O Saving
S - Save (Auto Reboot)

DataMover SS> █
```

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Note that there is a flag now in the menu next to the **Password** selection, (Changed). This is just a visual reminder that you had changed the password.

## ***QUIT W/O SAVING***

Selecting **X** will exit the menu without saving any of the changes you have made. All changes are aborted.

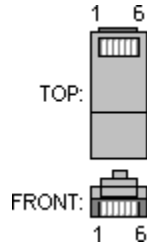
```
| X - Quit W/O Saving  
| S - Save (Auto Reboot) |
```

## ***SAVE (AUTO REBOOT)***

Any changes made need to be saved prior to them taking effect. This includes changing the password as well.

**DataMover SS 900 Synchronous**  
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*RJ12 CONNECTOR REFERENCE  
 PLUG (MALE)*



Sync RS232 RJ12	SIGNAL
1	TXC (OUTPUT)
2	RXC (OUTPUT)
3	Not Used
4	DATA OUT
5	DATA IN
6	GROUND

Terminal/Console & Radio Diag	SIGNAL
1	Not Used
2	Not Used
3	Not Used
4	DATA OUT
5	DATA IN
6	GROUND

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## *Firmware Upgrade –*

This unit is field upgradeable. The upgrade file is a Windows executable file. An upgrade file must be supplied by SIMREX.

Each unit needs a separate update file, as the process is specific to a particular product AND a particular serial number for that product. Even if you have 2 units of an identical product, they each have a unique serial number, therefore, each require their own respective upgrade files.

After an upgrade file is provided to you by SIMREX, place the file on a drive that **can be written to** and follow the below instructions on how to accomplish this.

Required: A PC with an RS-232 serial port, the gray DB9-RJ12 adapter labeled Flash Program, an RJ-12 cable, and the upgrade file.

1 - Plug the programming adapter into your PC's serial port, with the RJ12 cable between it and the Flash Upgrade connector on the DM I/O.

2 - Power up the unit. The unit needs to be powered up with the programming cable in place to initiate the flashing procedure. (When the unit is successfully booted into programming mode, you can tell by the state of the LED's on the front. Typically, 2 or 3 of the LEDs turn on and stay while in flashing mode.)

3 - Run the flash upgrade executable supplied by SIMREX. This program will access the serial port and do the actual updating itself.

**DataMover SS 900 Synchronous**  
**rev 1.0**  
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When the Flashing Complete box pops up, it is done.

Unplug the RJ-12 cable from the DM I/O and cycle power on the unit. Upon re-boot, the new firmware will be active.

NOTE: There is no indication of the progress of the flashing operation. A successful flash will take longer than 20 seconds. If there is some error with the serial port, like it is in use, you will see an error message. If there is no serial port error, but the program returns a Flashing Complete in less than 10 seconds, there has been an issue with communicating with the actual CPU board inside the unit. If this is the case, please contact SIMREX for support.





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