MARK ROBERTS MOTION CONTROL

FREED

DESKTOP BOX

QUICK START GUIDE

QSG Product code: MRMC-2270-00
Product Covered: MRMC-2157-00

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Chapter 1 **Quick Start**

Overview

Thank you for using the FreeD Desktop Box from Mark Roberts Motion Control (MRMC). The FreeD Desktop box can be used to transmit FreeD data packets from the camera both in Flair Motion Control software system or MHC system.

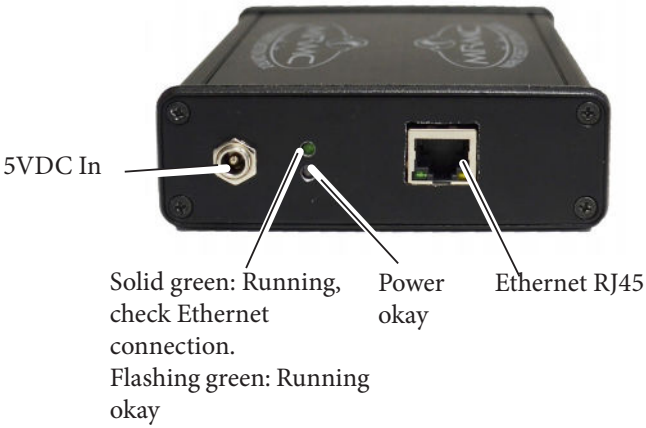
Safety

- Do not use around flammable gas. All electrical equipment can generate sparks that can ignite flammable gas.
- Keep Away From Pets And Children. The track and camera heads have powerful motors that can pinch, so take care not to get your hands trapped in the gears or cabling.
- Keep the equipment dry. The system has **not** been made weatherproof. Do not use with wet hands.
- Keep cables tidy. Use cable ties to keep them out of harm's way.

FreeD Sync Box: Setup and configuration

FreeD sync box needs to be configured before first use (normally configured at the factory).

1. Connect the FreeD box via Ethernet to the same network as that of the Flair or MHC PC.

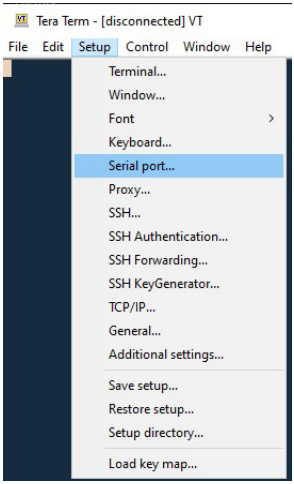


2. Power up the FreeD box by supply 5VDC IN.

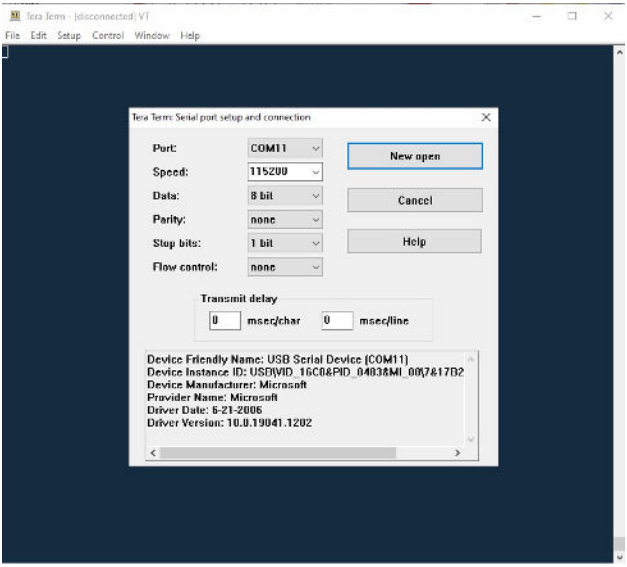
3. Install TeraTerm and set it up (free application).

   You can download it here: https://ttssh2.osdn.jp/index.html.en

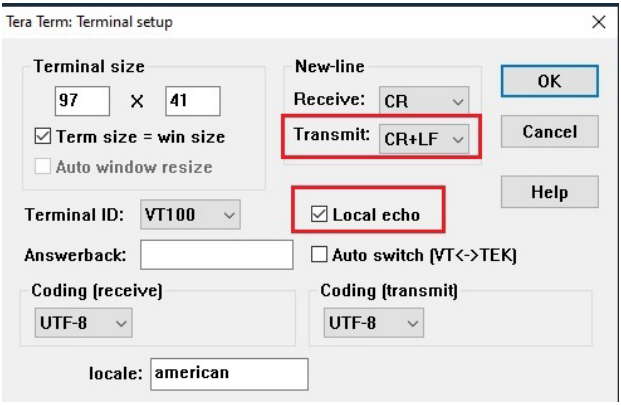
4. Launch TeraTerm and select **Setup > Serial** port.



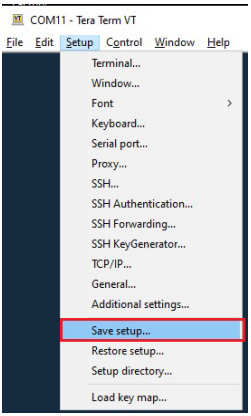
5. The Serial Port Setup and Connection dialog box will show the following information. Click Cancel to close the dialog box.



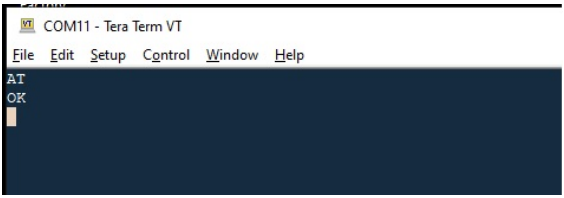
6. Select **Setup > Terminal.** In the Terminal Setup dialog box, select the following options and click OK.



7. Select **Setup** > **Save Setup** to save the setup.

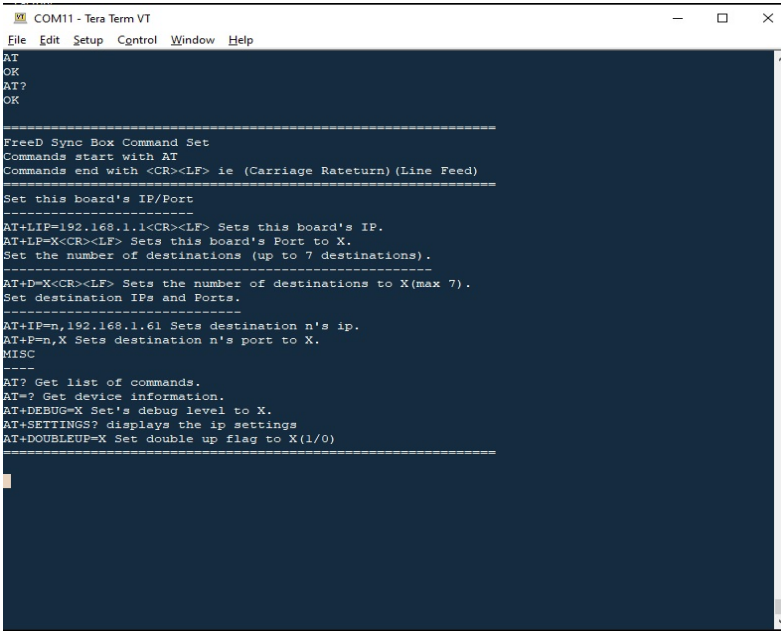


8. Type "**AT**" and press Enter. AT(Attention). If you get an '**OK**' message as response, your setup was successful.

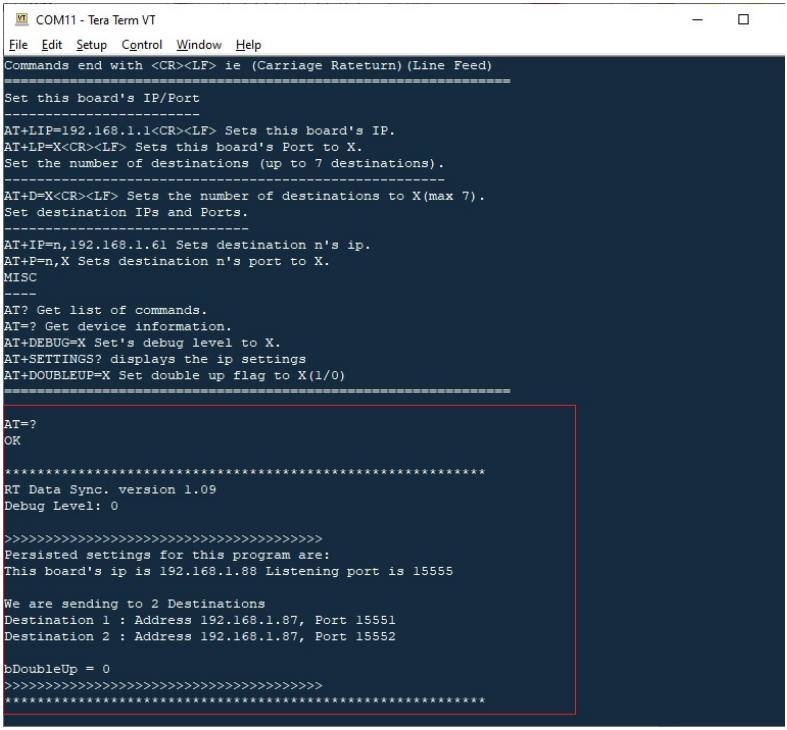


If you don't get any response, check your physical connection (USB, Genlock, Ethernet and 5V should all be connected).

9. Type "**AT?**" to get a menu of commands.



10. **AT=?** will respond with system information.

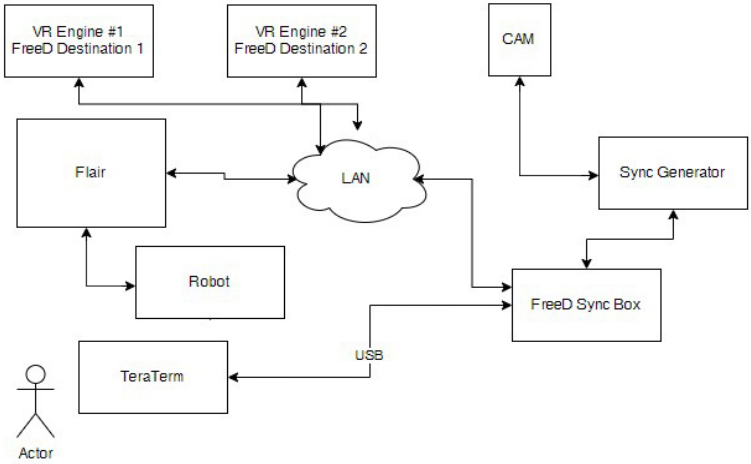


Changing the IP address of the FreeD box

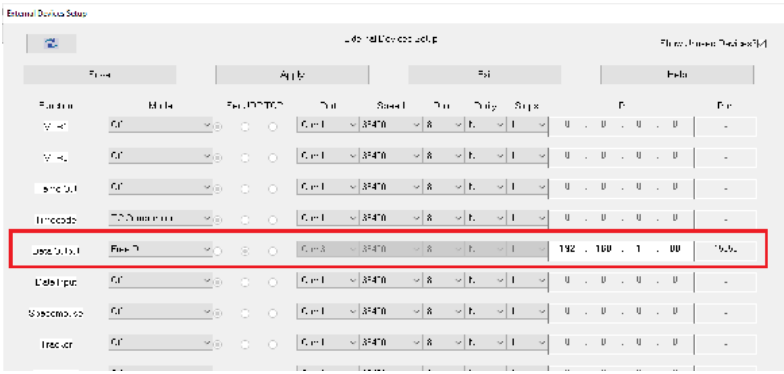
To change the IP address of the FreeD box, enter
AT+LIP=192.168.1.88

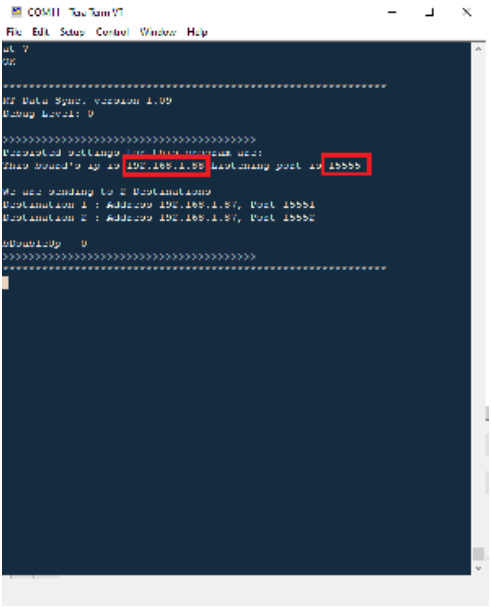
To change the port to **X**, enter
AT+LP=X

Testing the FreeD box in Flair Setup

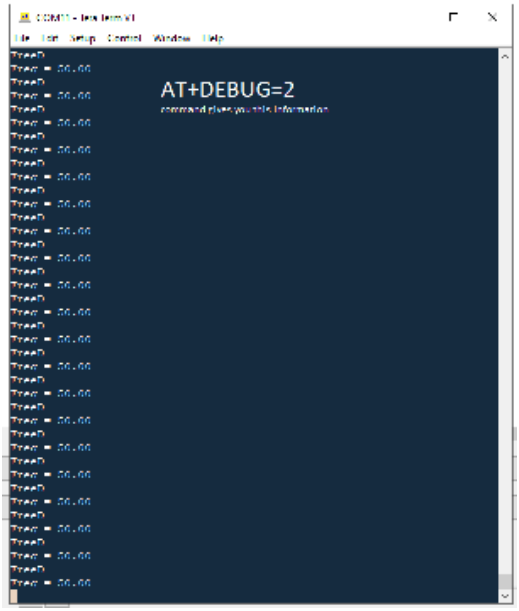


1. In Flair, select **Setups** > **Serial Devices** Setup. The External Devices Setup window appears. In the Data Output line, ensure that FreeD is selected and assigned to the same IP address and Port as that of the FreeD box.





2. **AT+Debug=2** command gives you the following information:


AT+DEBUG=2
command gives you this information
Tracking
Tracking
Tracking

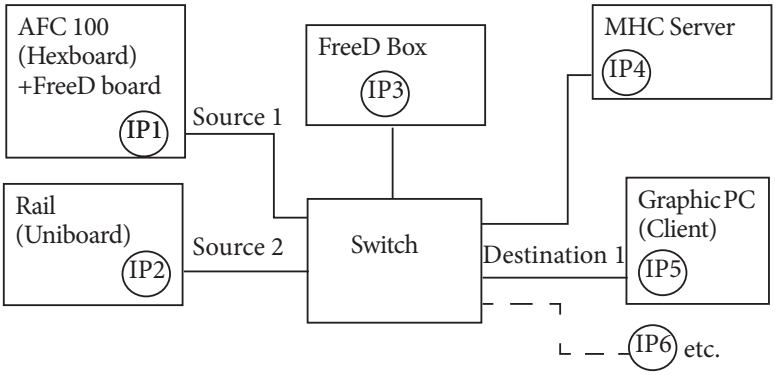
"**FreeD**" gets printed every time the box receives a FreeD message from Flair.

"**Freq**" determined by the Sync Generator (Genlock signal).

Disconnecting the genlock signal will change the frequency to 0.

Plug it back and the frequency change to 50 (if set to 50p).

FreeD Box Setup for Quiet Rail System (QRS)



Requirements

- Minimum 5 ports switch
- All IP addresses must be in the same network subnet

FreeD box IP settings (USB Serial and Teraterm)

1. Launch Tera Term.
2. Use the command **AT = ?** to see the current settings.
3. Set IP3 using: **AT + LIP =** ***IP3*** (IP address and port on the label on the FreeDbox)
4. Set Port (Listening) to 55534: **AT + LP = 55534**
5. Set IP address of Source 1 to be that of AFC 100: **AT + SRC1 =** ***IP1***
6. Set IP address of Source 2 to be that of Rail: **AT + SRC2 =** ***IP2***

7. To set the FreeD box to merge AFC head and rail output use the following command

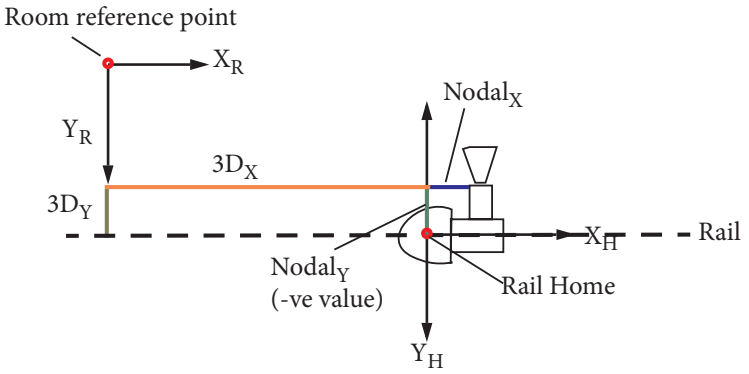
   `AT + merge=1,0,0`

8. Set IP address of destination(s) to be that of Client VR PC or Test PC:

   `AT + IP = 1,`*`IP5`* (First Destination)
   `AT + IP = 2,`*`IP6`* (Second Destination)

9. Set ports of destination(s) to be that of Client VR PC or Test Program: **`AT + P = 1, 19201`** (As in the batch file for "FREEDCRYSTALBALL")

Head MHC Set Up



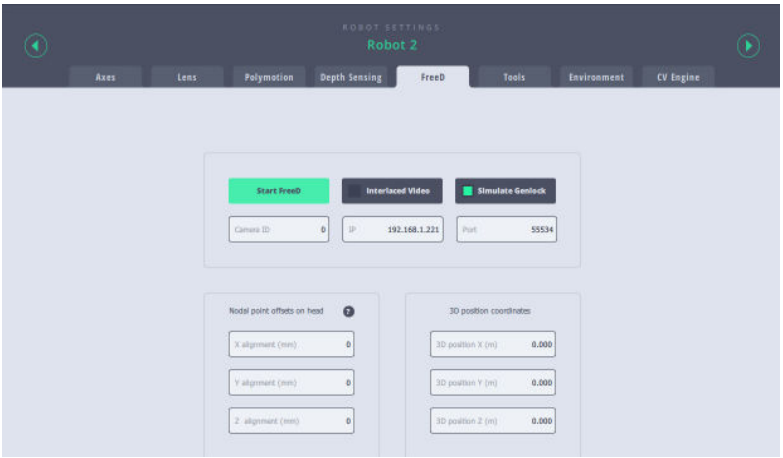
H= Head
R= Room

OFFSETS

$Nodal_X$	$3D_X$
$Nodal_Y$	$3D_Y$
$Nodal_Z$	$3D_Z$

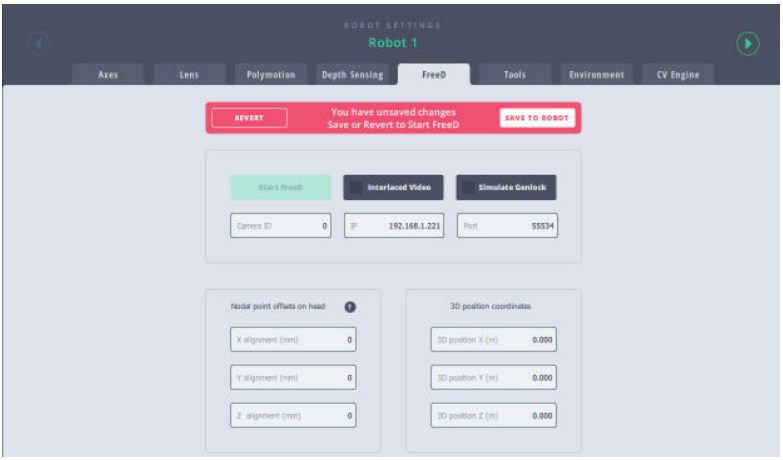
1. In MHC, in the ⚙ > **Robot** > **FreeD** tab, set the IP address and port of FreeD box (IP3) both on AFC and Rail (Camera ID must be the same).

2. AFC will enable FreeD output either using real sync signal or ‘Simulated Genlock’ function in MHC if Sync is available. Plug it in any of the two sync ports, otherwise activate ‘Simulate Genlock’.



3. QRS does not have a sync input, so ensure that ‘Simulate Genlock’ is active for QRS.

4. Click **Save to Robot**.



5. In the > **Robot** > **Axes** tab, set the scaling of the QRS so that the poistion is in mm: 0.00035147. Set all other parameters in mm instead of cm.

6. In the FreeD tab, click **Start FreeD**.

Test FreeD

1. Enter **`AT+Debug=2`** command in Tera Term.

   If **`FREQ=0`** is displayed then there is no sync input and no FreeD output to test.

   FREED means there is input data from at least one of the sources (either QRS or AFC head)

2. Check that when plugging or unplugging the sync signal, the FREQ toggles from 0 to the active value and FreeD output stops and restarts.

3. Check that when plugging or unplugging the sync signal from AFC, you see input from FreeD box going on and off and pan/tilt output data from the FreeD box stop and restart

4. Check that when stopping and starting FreeD output in MHC for Rail and/or AFC, you see input from FreeD box going on and off and pan/tilt output data from the FreeD box stop. Restart FreeD.

Setting the Test Program on the Destination PC

1. With FREED CRYSTALBALL, unzip the folder on the destination PC (IP5 or IP6 etc.).

2. Edit the batch file (name of the batch file is not important) to set the destination port to match that set in the FreeD box for that destination PC and the log filename.

3. Launch the batch file. If there's an output, it will be printed on the console window in RT.

Notes

Notes

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