# Installation of NITOS USRP Chassis Manager (CM) Card v2

## **Components included / required:**

Within the parcel you can find the:

1. NITOS USRP Chassis Manager (CM) Card
2. USB 3.0 controller
3. CM connection extender
4. 4 Pin dupont wire female connector
5. USB 3.0 extension
6. Power supply extension
7. 1 Pin dupont wire female connector



1. NITOS USRP Chassis Manager (CM) Card



2. USB 3.0 controller



3. CM connection extender



4. 4 Pin dupont wire female connector

5.      USB 3.0 extension



6.      Power supply extension



7.  1 Pin dupont wire female connector

**<u>USRP Chassis Manager Card Connections</u>**

In the following picture, the USRP Chassis Manager Card connections are depicted. Great care should be taken in order to avoid confusing the input with the output side of the aforementioned card.
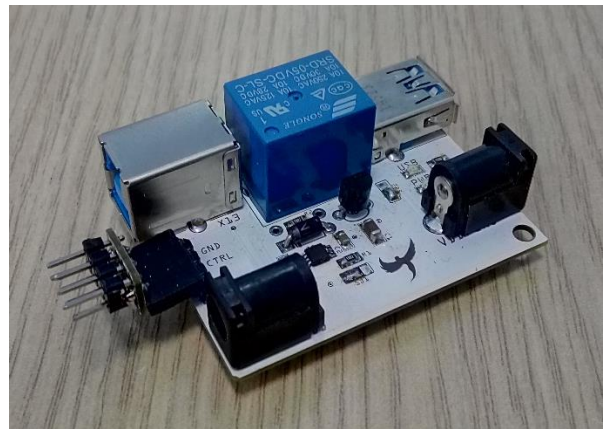
## Connecting the USRP Chassis Manager (CM) Card with Icarus' CM Card

**Step 1:**

Attach the provided CM connection extender with the correct orientation as presented in the following image.



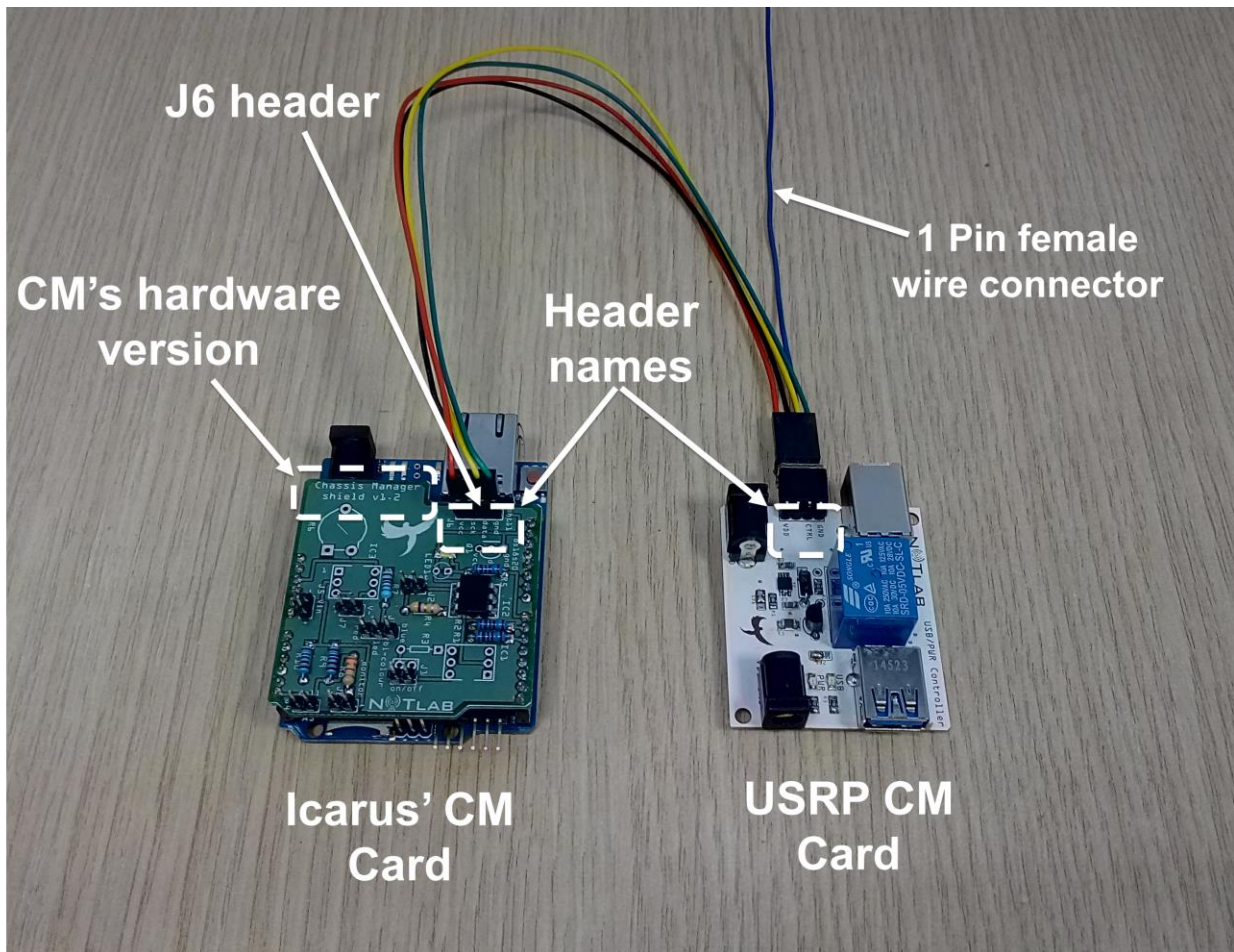**Correct Connection**                              **Wrong Connection**

**Step 2:**

Use the provided 4-pin dupont wire connector in order to bridge the four header pins of the Icarus' CM Card (J6 connector) with the *appropriate* upper header pins of the CM connection extender - connected on the USRP CM card - as presented in the following table.

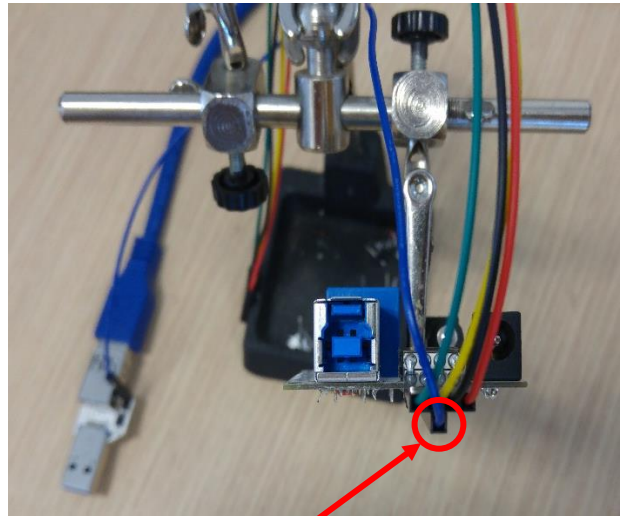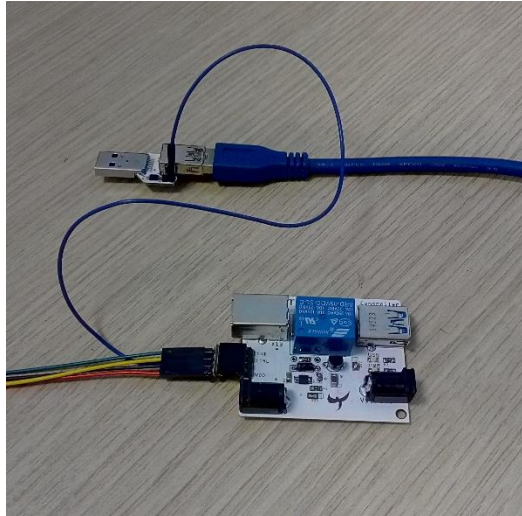| Icarus' CM card header name | USRP CM Card header name |
|---|---|
| gnd | GND |
| data | CTRL |
| sck | |
| vcc | VDD |

The side and notation for the dupont wire connector in both cards is presented in the following picture. Please do not connect the 4 pin dupont connector reversely, it will damage the USRP CM.



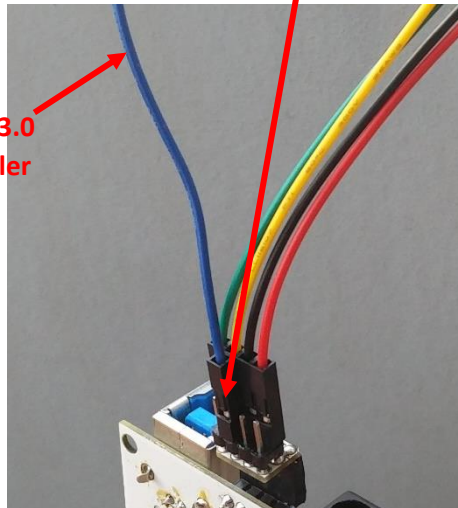*Icarus CM card's firmware needs to be updated, to also support the functionality of the USRP CM Card.

## Step 3:

Use the provided 1 Pin dupont wire female connector in order to bridge the *lower CTRL* header pin of the CM connection extender with *any of the 2* header pins located on the USB 3.0 controller as depicted in the following images.





**Lower CTRL header pin of the CM connection extender**



**To USB 3.0 Controller**

*Care should be taken to properly connect the 1 Pin dupont wire female connector with the lower CTRL header pin of the CM connection extender. The other end of the dupont connector can be connected to any of the 2 header pins (they are bridged) located on the USB 3.0 controller.

## Manually Controlling USRP Chassis Manager Card (just for testing – not required step)
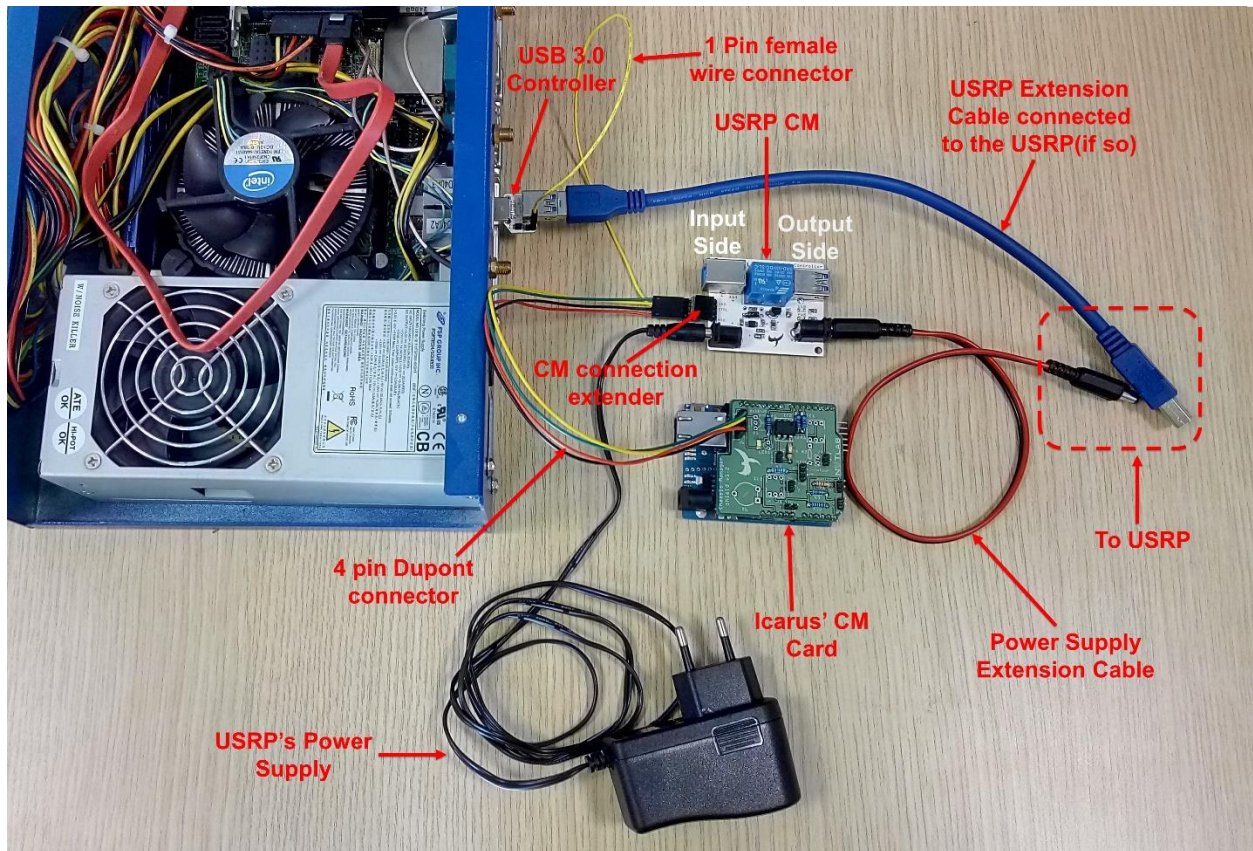
- Driving the CTRL pin LOW (to the ground), the USRP Chassis Manager Card is switched **OFF** and no power (and/or) USB data is passed to the following USRP device.

- Driving the CTRL pin HIGH (to 3.3V/5V), the USRP Chassis Manager Card is switched **ON** and power (and/or) USB data is passed to the following USRP device.

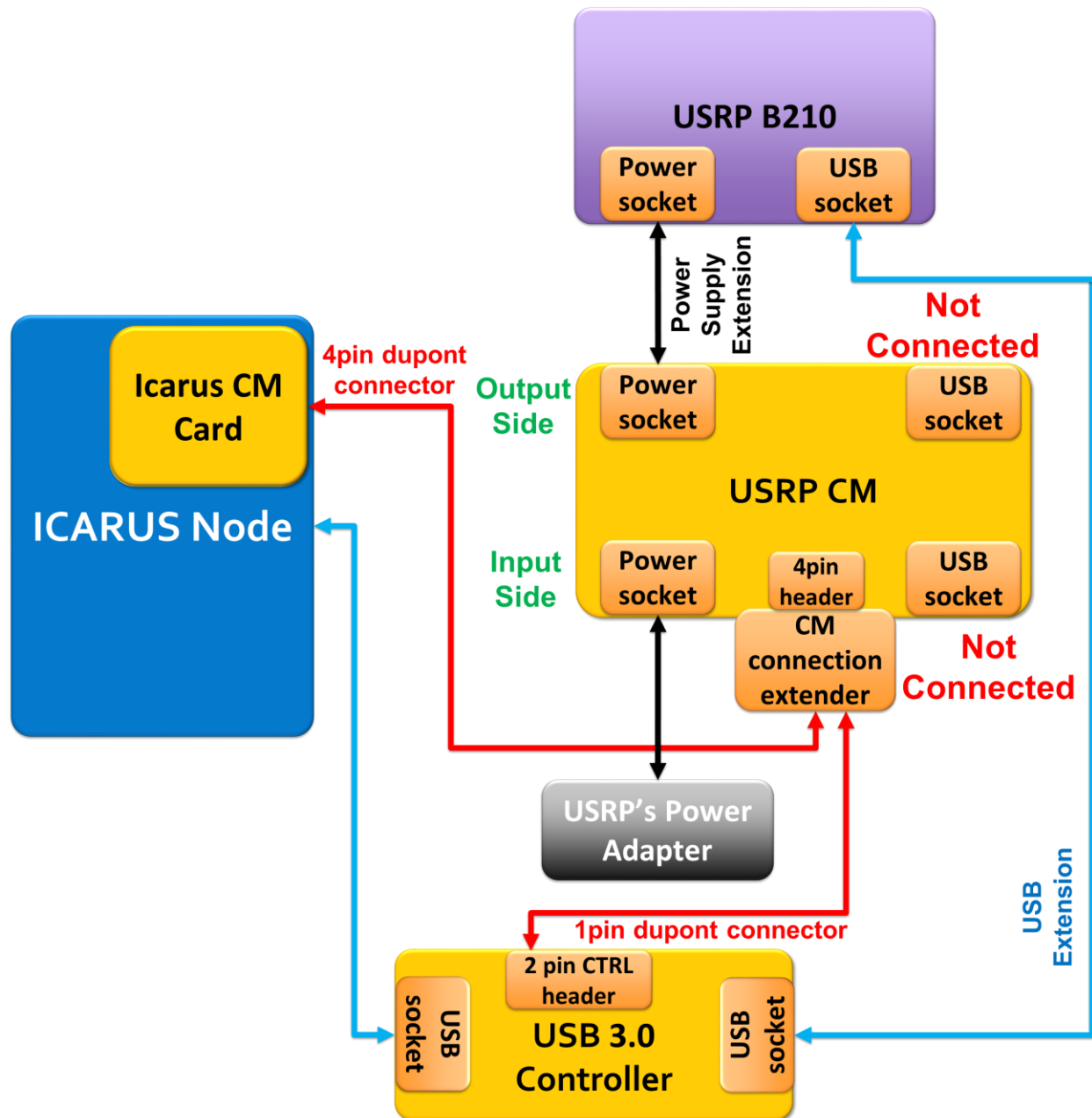| CTRL pin | Power | USB |
|----------|-------|-----|
| LOW | **OFF** | **OFF** |
| HIGH | **ON** | **ON** |

## USRP connection architecture

The overall system architecture with all the required connections is presented in the following picture.

## Architecture diagram

USRP B210 case:

Rest USRP devices case: