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IMAGING SYSTEMS INC
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The photos that follow explain how to operate the TIMELAPSE ASSEMBLY.

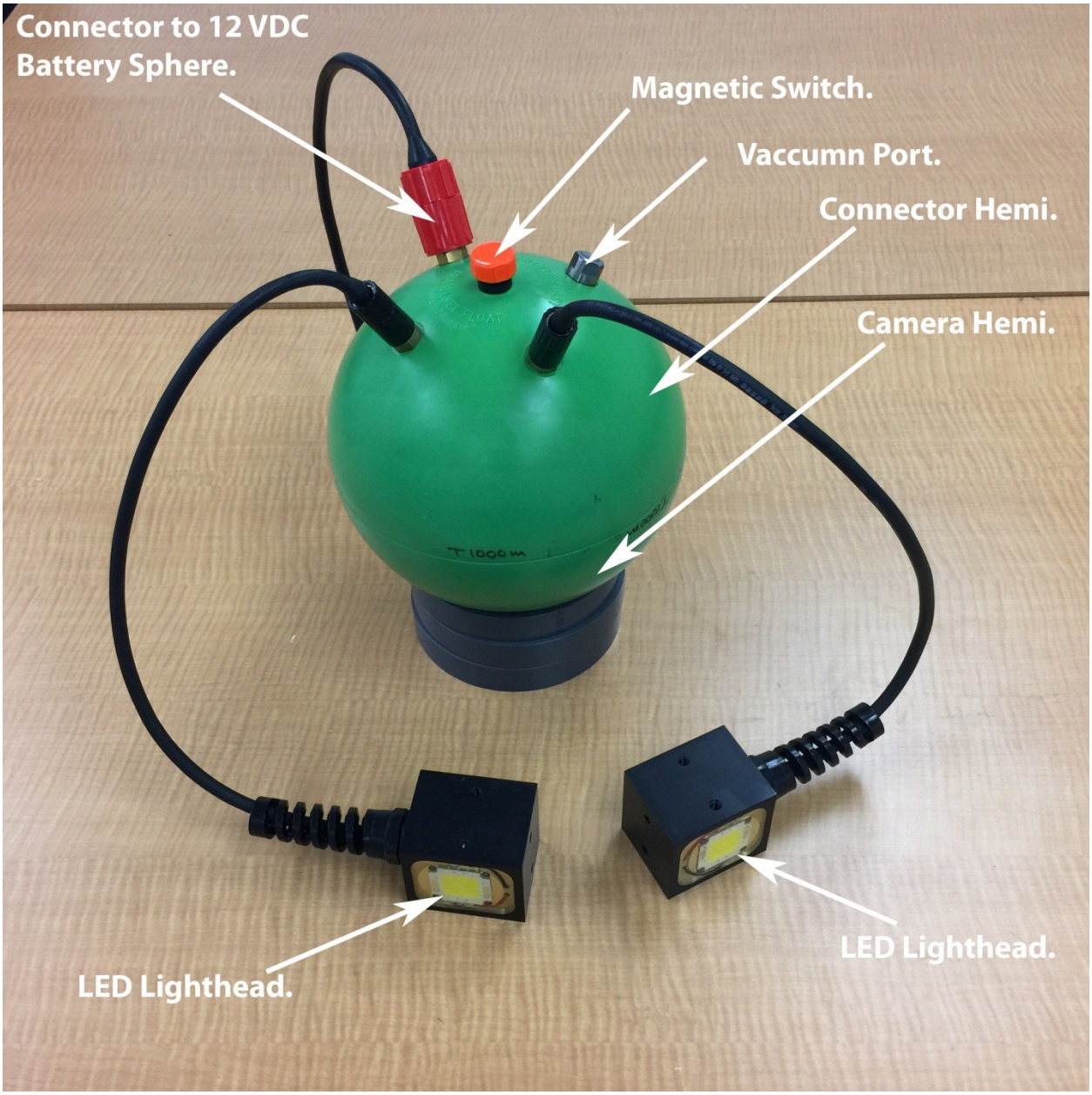

Figure 1 Overview. The camera is located in the lower hemisphere and the components for the lights are located in the upper hemisphere.

The Sphere-Cam uses our existing time-lapse assembly. We tested many small cameras before we choose the one that we use in it. The model is the Mobius Action Camera (https://www.mobius-actioncam.com/). The camera has become very popular with a range of users in particular, Radio Control airplane and drone users. There are some resources online that will help if you ever need them:

- Camera related software and owner's manual can be used when the camera is connected to a computer via the USB port. For the latest software check here: https://www.mobius-actioncam.com/downloads-info/
- To access the cameras settings download the program Msetup.zip
- There is an excellent support forum for the camera here: https://www.rcgroups.com/forums/showpost.php?p=25170910&postcount=4

The USB port and MicroSD card have been positioned within the camera sphere in such a way that you should be able to do everything needed without ever having to remove the camera.

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Camera Hemisphere

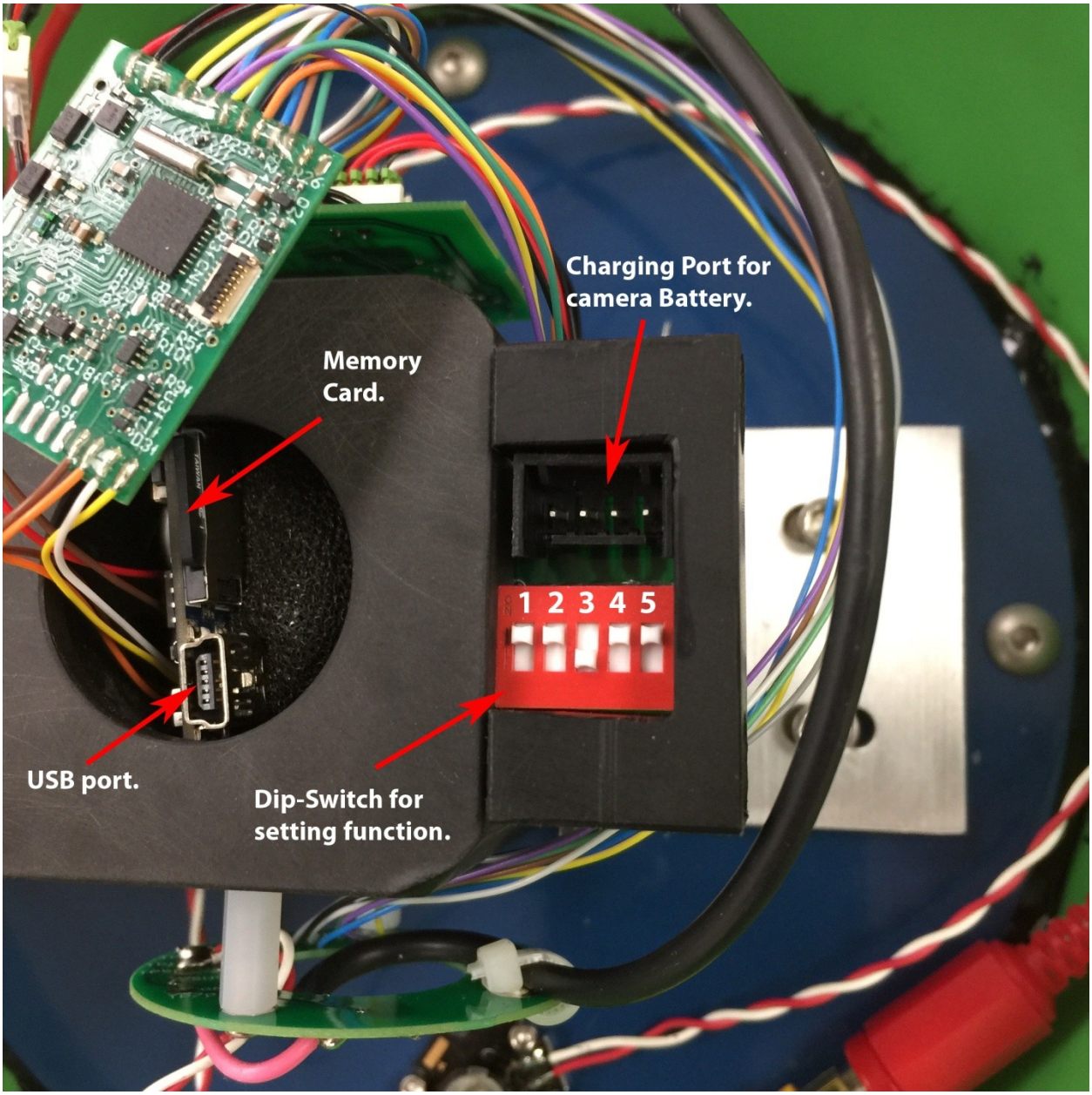

Figure 2 The Timelapse camera sphere data can be downloaded using the USB port or the Memory Card can be removed and replaced. The battery camera can be charged using the charging port next to the dip-switch. The dip-switch in the photo is in the 1101 (Every 10 min, 10 sec of Video).

1. The time lapse intervals can be set by adjusting the dip-switches. Note that power must be cycled to allow the changes in settings to be read into memory.
    a. The numbers in the table below are read from left to right corresponding with switch #1 through #4. Switch #5 is NOT USED.
    b. A "0" indicates that the switch should be in the "off" position. A "1" indicates that the switch should be in the "on" position. A switch is "on" when it is slid all the way up, next to the number on the body.
    c. **EXAMPLE:** 1000 means switch 1 on, switches 2,3 & 4 are off.

Option	DIP-SWITCH POSITIONS	Function
0	0000	Video
1	1000	30-second Photo
2	0100	1-minute Photo
3	1100	2-minute Photo
4	0010	5-minute Photo
5	1010	10-minute Photo
6	0110	15-minute Photo
7	1110	30-minute Photo
8	0001	60-minute Photo
9	1001	Every 5 Mins, 1 Mins Video
10	0101	Every 1/2 Hrs, 5 Mins Video
11	1101	Every 10 min, 10 sec of Video
12	0011	Every 20 min, 20 sec of Video
13	1011	Every 30 min, 30 sec of Video
14	0111	Every 60 min, 60sec Video
15	1111	DORMANT

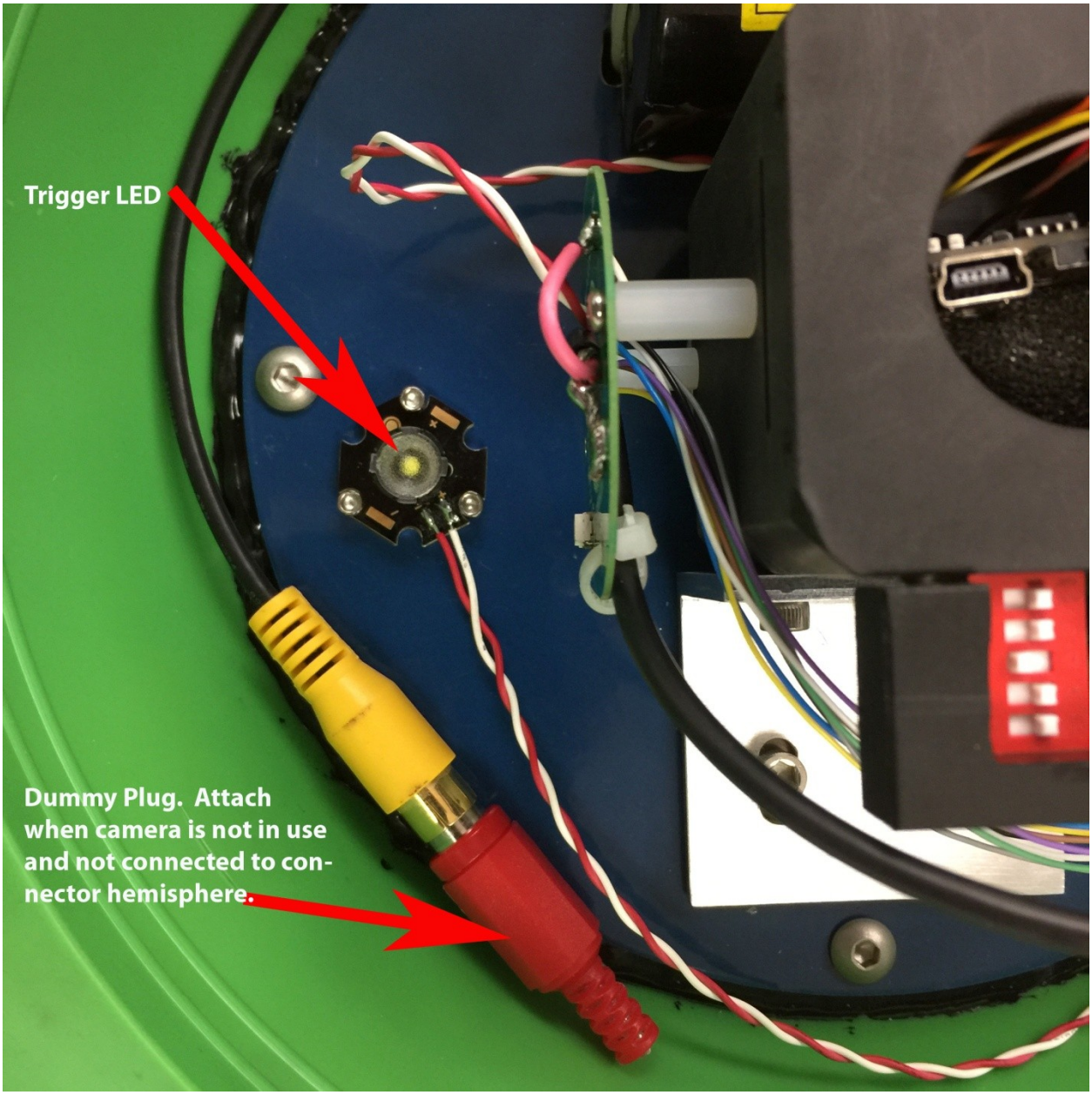

Figure 3 The camera has a small Trigger LED that activates a photo-relay in the connector hs. Do not block the LED. The magnetic release attached to the connector hs is connected to the camera via a RCA cable. Replace the dummy plug when not in use.

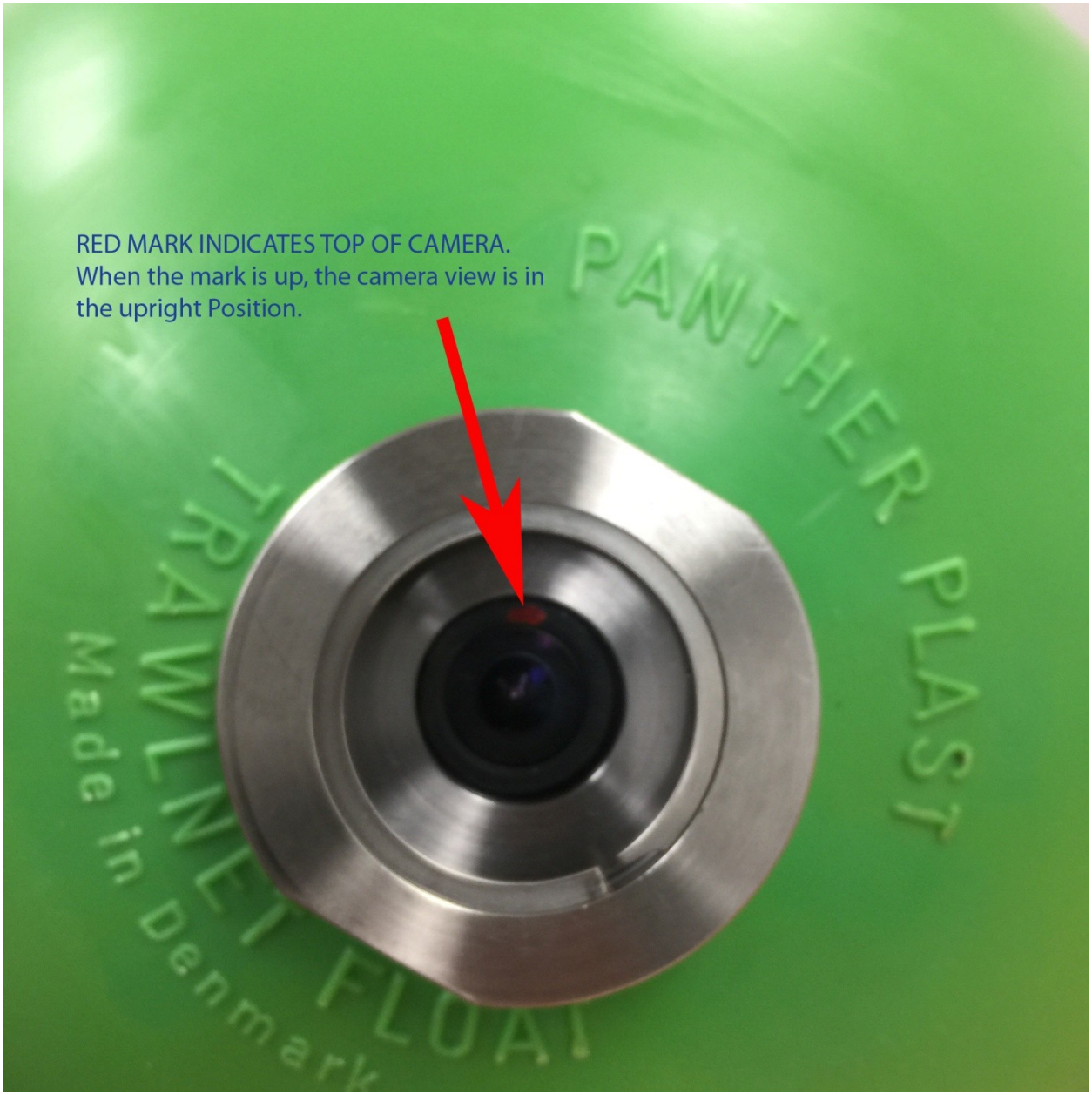

Figure 4 The window port located on the bottom of the camra hemisphere. The red mark on the lens indicates the upright positon.

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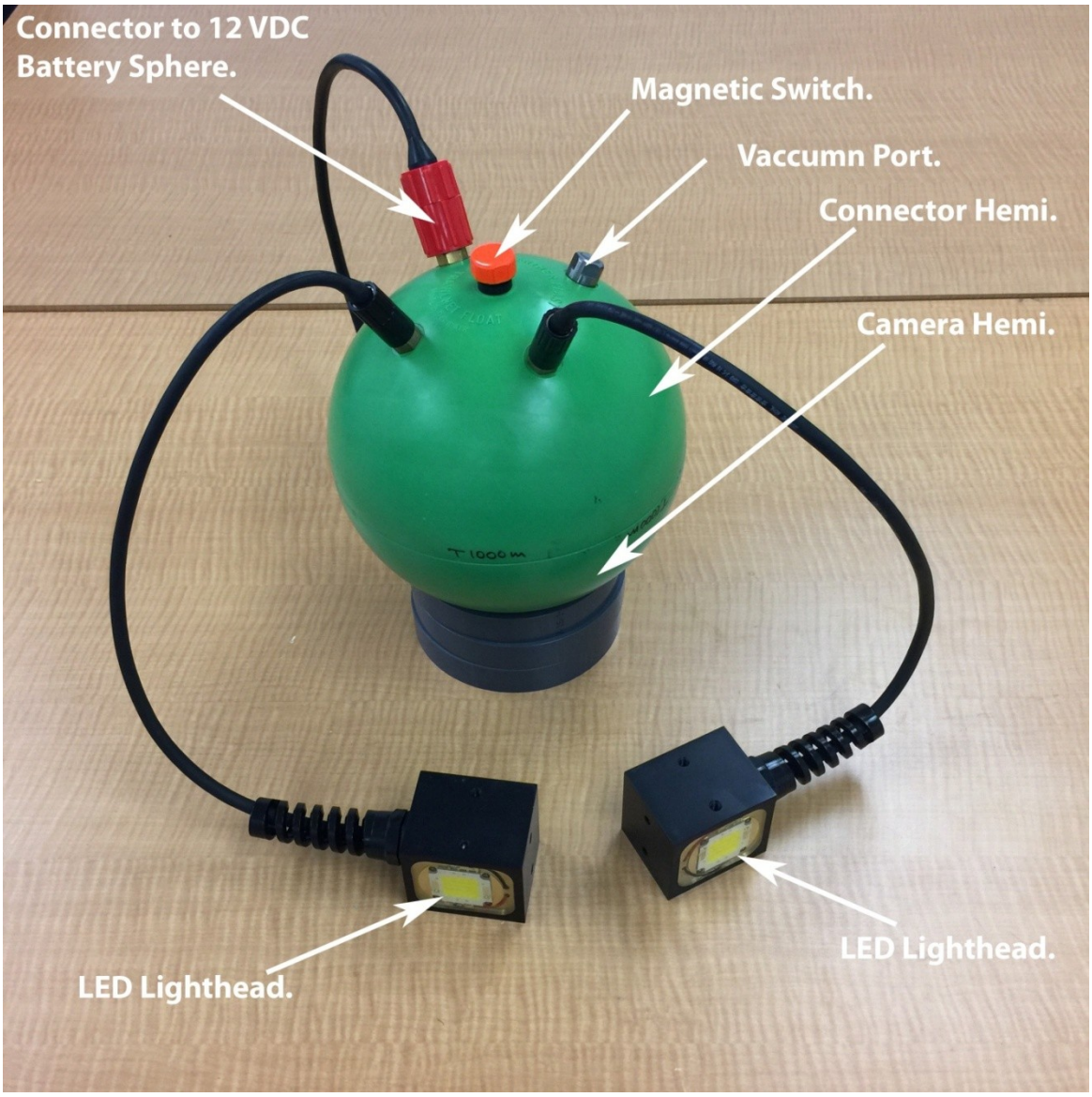
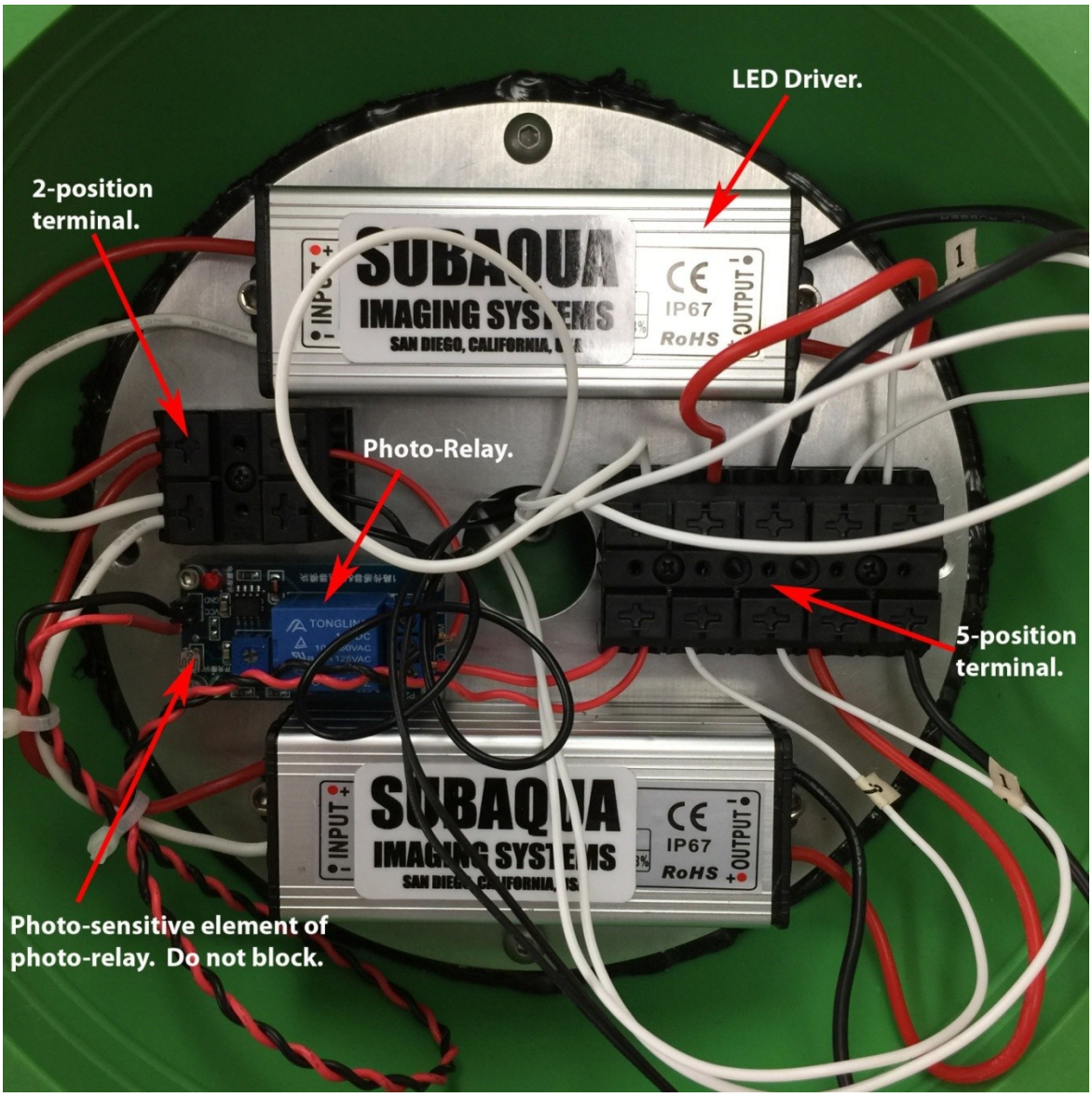
Connector Hemisphere

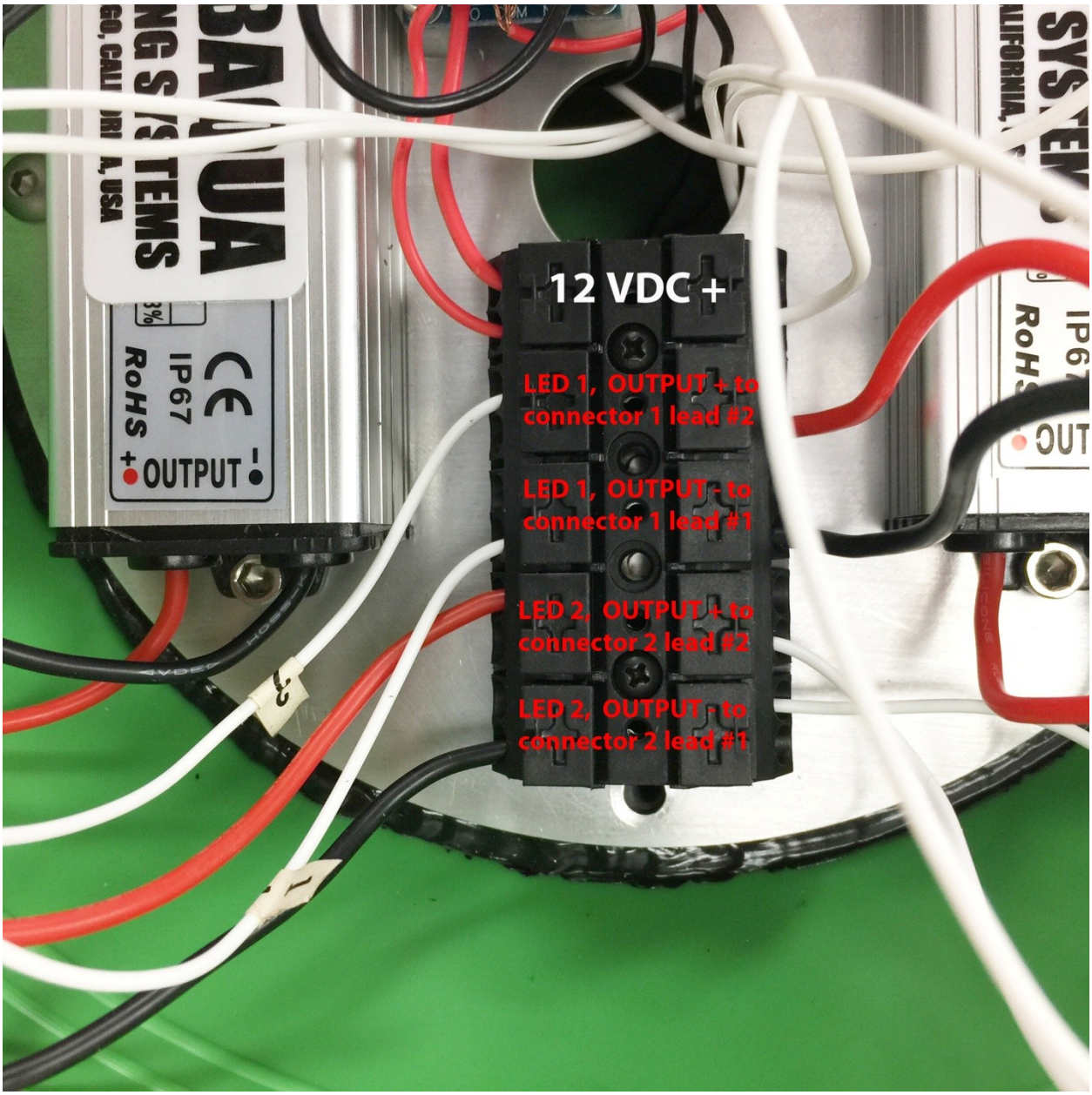
The Connector Hemisphere has five ports:

1. 12 VDC power for lights only (the camera has it's own battery within the camera hemisphere).
2. Vacuum Port
3. Magnetic Switch (removing the brightly colored cap activates the camera).
4. LED Light cable
5. LED Light cable



The LED drivers are the largest components in the connector sphere. There is one for each light and they are powered by the external 12 VDC power source connected to the hemisphere by the power connector. The positive leads are routed through a photo-relay which closes and allows power from the power connector to flow to them when the LED in the camera hemisphere is activated.
A 5-pin terminal strip is used to connect the output from the LED drivers to each of the LED connectors.
The positive lead of the 12VDC power runs through the 5-position terminal strip and supplies the relay and the relay switch.
A 2-postion strip located next to the photo-relay board connects the negative lead from the 12VDC connector to the LED drivers and the photo relay board.





Note the RED LED above and to the right of the *"12 VDC input for relay"*. This LED should be ON when the external 12 VDC power is properly attached to the hemisphere, regardless of whether the magnetic switch is activated or not.

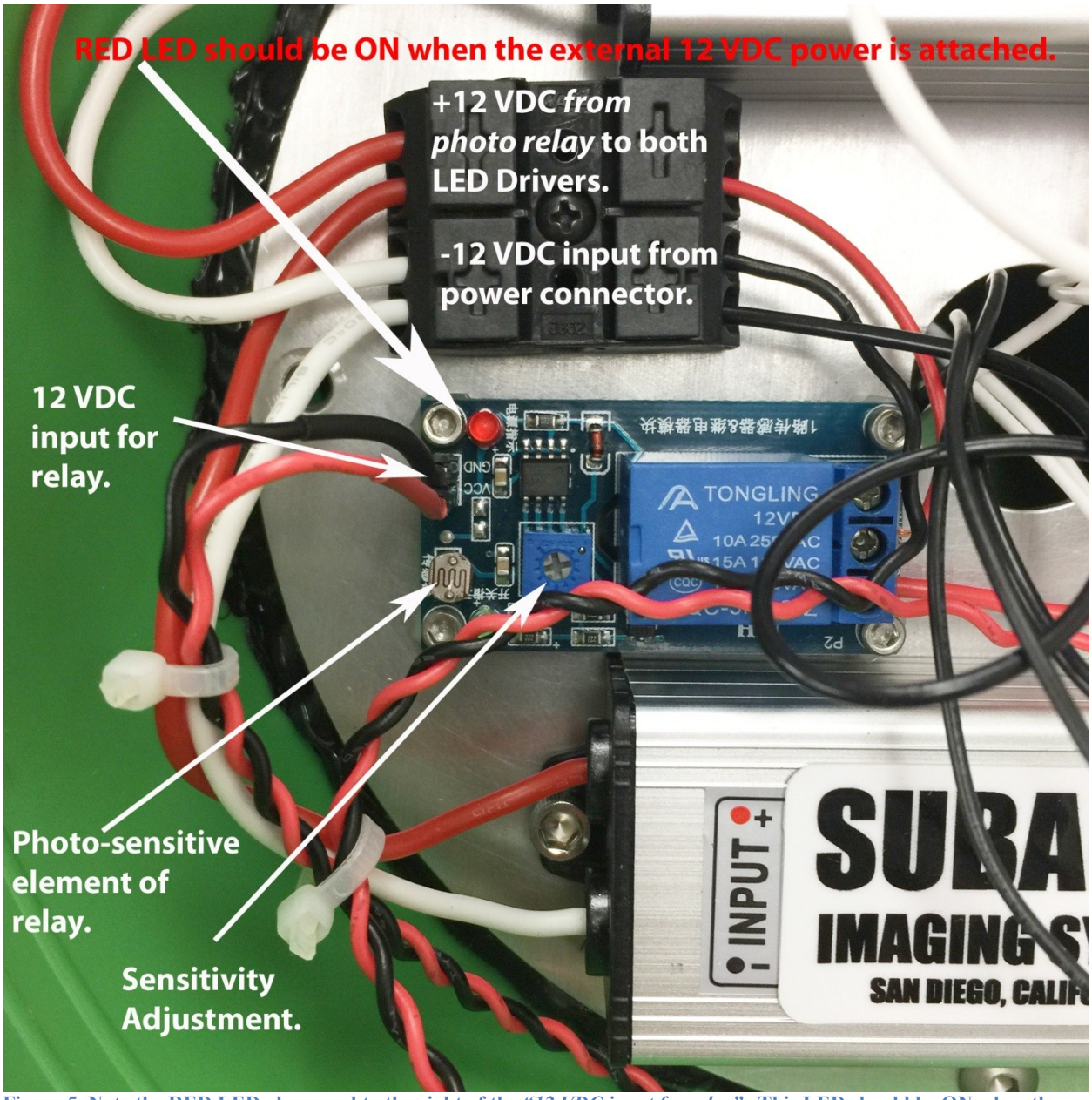


Figure 5 Note the RED LED above and to the right of the *"12 VDC input for relay"*. This LED should be ON when the external 12 VDC power is properly attached to the hemisphere, regardless of whether the magnetic switch is activated or not.