

FAQs

Is it possible to use a laser with built-in pre-chirp instead of using the external, custom prism-based pre-chirp?

At 970nm, we found that $>35,000 \text{ fs}^2$ of negative GDD was necessary to fully compensate for the GDD of the whole microscope system. As far as we know, this far exceeds the amount that any commercial pre-chirp can provide, whether it's a stand-alone device or internal to a laser, which is why we implemented our own custom prism-based prechirp that can have a very large (~8ft) separation between prism passes. A system that can only provide half of that negative GDD ($-17500 \text{ fs}^2 @ 970\text{nm}$) would result in 100fs pulses being stretched to ~500fs at the brain, dramatically lowering signal level.

It is possible to sequentially add pre-chirps, so it might be possible to achieve the necessary GDD by combining a laser-internal pre-chirp with a commercially available external pre-chirp.

One must be careful when looking at negative GDD specs, as they are highly wavelength specific. Pre-chirps can provide much more negative GDD at bluer wavelengths than red.

What is the smallest air table that can be used with the 2p-RAM?

All tables must be at least 4 ft wide to accommodate the 2p-RAM cage.

4'x8': This is the size of the table used for the 2p-RAM workshop. It provides a comfortable amount of room. In addition to a Chameleon or Mai-Tai-type Ti:Sapph laser and the prism-based pulse pre-chirp, a Fidelity fiber laser and also a few, small lasers for fiber-coupled photostimulation can fit onto it without much effort.

4'x8': This is still pretty comfortable, as long as the Fidelity laser isn't needed. Smaller lasers can definitely go inside the 2p-RAM cage. It's probably possible to add the Fidelity inside the cage as well, but there might be an issue with its height.

4'x7': It would be tough to fit the Ti:Sapph laser and prism-based pulse pre-chirp. The Ti:Sapph probably needs to go outside the cage due to its size, so the pre-chirp would have to go inside (might require some modifications), or it would have to go vertical somehow.

4'x6': This is just enough room to put the 2p-RAM cage on.

Should I order all items on the Jenoptik quote?

No. Only order items 1-5. Note in addition that pupil relays 1 & 2 are identical (but you need 2), so it's only 4 distinct parts.

We decided to order items 6-8 from another vendor to save some \$\$.

After Jenoptik and Thorlabs Gantry, what is the longest lead-time item?

Cambridge Technologies scan mirrors. These can take 3 months, so order them as soon as you can.

Should I order everything on [2p-RAM Parts List \(072616\).xlsx](#)?

No. Follow instructions.

There is a mismatch in the numbers in the quotes and in '2p_RAM Parts List (072616)'.?

This is because we asked vendors to quote quantities of 5 & 10 in cases where discounts are possible.

Please order the number of units specified in [2p-RAM Parts List \(072616\).xlsx](#) Refer to the quotes supplied in the table.

What about the list '2p-RAM Accessory Optics Parts List'?

This pertains to the auxiliary light path (not two-photon). It is a collection of parts, mostly off-the-shelf, that provide very useful functions.

These will allow optogenetics with laser scanning photostimulation, wide-field imaging, and alignment of the coverglass to be normal to the beam axis.

For the Schneeberger item, please reach out to Lance Cobb (lance.cobb@schneeberger.com) for a quote and pricing. The previously referenced quote HHMI-20-160321-0 is WRONG. The part needed is "NDN-2 30.20". The quote [Schneeberger_JHHMI-20-150220-01.pdf](#) can be referenced. It is correct.