

Adapter Systems



2022

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Introduction

QHY offers a very comprehensive and flexible adapter system that allows our cameras to achieve focus with a variety of accessories, including camera lens adapters, off-axis guiders, filter wheels and numerous optical systems. The many potential combinations of these items produce an equal variety of back-focus distances that must be considered to make it all work together. This variety and flexibility, however, also can be confusing particularly for new users. Therefore, based on users' feedback we have decided to include a fixed combination of adapter kits to meet mainstream needs of most users (e.g., Multi-Purpose Coma Corrector, Canon lens adapter, Nikon lens adapter, etc.). Users can choose the corresponding adapter set according to their needs to ensure focus. There is no need to measure and calculate the back focal length, choose adapters, and customize screws as before. We will directly provide the calculated results and corresponding adapters.

Back Focal Length Defined

When an optical system requires the sensor of the camera to be located at a specific distance from the last optical element, mechanical spacer adapters are used to position the camera at the right location. If the camera system also includes a filter wheel and an OAG, for example, between the camera and the telescope, the space required for these items must be taken into account.

As a simplified explanation, if a telescope's field flattener requires the camera focal plane to be 55mm behind the last optical element, and the filter wheel is 20mm thick, and the OAG is 10mm thick and the sensor is set 10mm inside the camera then these items all take up $20+10+10=40$ mm of the back focal distance. Still, the camera needs to be 55mm away so we need to add spacers that take up this remaining 15mm. This also means that if you have an optical system that requires 55mm of backfocus distance and your filter wheel is 25mm thick and the OAG is 20mm thick and the sensor in the camera is 17mm from the front plate, then these items take up $25+20+17=62$ mm of backfocus. Too much! In this case something has to go to reduce the total back focus distance of the camera to 55mm or a different optical configuration must be found.

Back Focus Consumed

For the convenience of calculation, all the data displayed are the increase in the back focal length taken up by using the adapter, which is not necessarily equal to the thickness of the component itself. All the adapter data provided by QHYCCD are based on the focal length increment. Note: If you do not want to use an OAG in any of the recommended combos, QHY provides an additional 10mm spacer adapter in some kits to replace the OAG.

Compatibility - Recommend Combinations

Our adapter combinations for monochrome cameras are based on the focal length of the combinations described in the following tables. These are also our recommended combinations. If you use combinations other than those recommended, the adapter set may not achieve its purpose. Also, if you select a combination of camera, filter wheel, etc., that is not one of the combinations specifically listed in these instructions, there may be mechanical compatibility issues that are not obvious without careful attention to the drawings that prevent the parts from joining together. If you are unsure, please contact our support personnel before buying a combination that is not one of the recommended combos.

All-In-One Adapter Kit

If you have no special requirements for the back focal length, you can use a standard T-Mount. If you need a specific back focal length, you can select one of the specific adapter sets to meet your requirements or use QHYCCD's All-In-One Adapter kit (p.17) to combine your own set of spacer rings to meet your particular requirements.

Please also note that the Combo kit drawings, below, depict how the adapters and other items are organized with various products such as filter wheels or an OAG, etc., but the adapter kits include only the adapter rings and screws and do not include the other products such as OAG, Filter Wheel and/or Camera.

Table1: Adapter Kits

Adapter Kit Model	Product No.	Compatible with	To Connect	Kit Includes	Note
Combo A1	020100	QHY294M/163M + CFW3M-S + OAG	55mm BFL MPCC	5mm M54 to M48 Adapter*1 3mm Spacer*1 0.5mm Spacer*1 10mm Spacer*1 22mm M3 Screws*8	This Combo A1 is included as a standard accessory with the QHY294M
Combo A2	020101	QHY294M/163M +CFW3M-US	Canon EF Lens	10mm M54 Canon EF Adapter*1 4mm M54 Screwed Adapter*1 3mm Spacer*1 1mm Spacer*1 Cam Top Adapter (originally 020063) 10mm M3 Screws*8	—
Combo A3 (Nik Adapter1)	020102	QHY294M/163M +CFW3M-US	Nikon F Lens	10mm M54 Nikon F Adapter*1	—
Combo B1 (B1-1, B1-2, B1-3)	020103	QHY268M +CFW3L +OAG Or QHY268M +CFW3M-US +OAG	55mm BFL MPCC	5mm M54 to M48 Adapter*1 3mm Spacer*3 1mm Spacer*1 10mm Spacer*1 24mm M3 Screws*8 28mm M3 Screws*8	This combo B1 is included as a standard accessory with (a) QHY268M and (b) QHY600 Short Back focus version
Combo B2 (For Canon Lens)	020104	QHY268M+CFW3L	Canon EF Lens	10mm M54 Canon EF Adapter*1	—
Combo B3 (For Nikon Lens)	020105	QHY268M+CFW3L	Nikon F Lens	12mm M54 Nikon F Adapter*1 0.5mm Spacer*1	—

Table1 Adapter Kits (Continued)

Adapter Kit Model	Product No.	Compatible with	To Connect	Kit Includes	Note
Combo C1	020106	QHY600M-PH +CFW3L	55mm BFL MPCC	5mm M54 to M48 Adapter*1 7mm Spacer*1 14mm M3 Screws*8	C1 is supplied as a standard accessory with QHY600M-PH
Combo D1	020107	QHY268C / QHY600C QHY168C / QHY247C QHY /128C / QHY410C QHY367C	55mm BFL MPCC	5mm M54 to M48 Adapter*1 2.5mm 2inch Filter Holder (Original Name 020055) 10mm Spacer*1 14mm Spacer*1 36mm M3 Screws*8	D1 is supplied as a standard accessory with QHY600C QHY268C
Combo D2	020108	QHY268C / QHY600C QHY168C / QHY247C QHY128C / QHY410C QHY367C	Canon EF Lens	10mm M54 Canon EF Adapter*1 4mm M54 Screwed Adapter*1 2.5mm 2inch Filter Holder (Original Name 020055) 3mm Spacer*1 1mm Spacer*1 14mm M3 Screws*8	—
Combo D3	020109	QHY268C / QHY600C QHY168C / QHY247C QHY128C / 410C QHY367C	Nikon F Lens	10mm M54 Nikon F Adapter*1 4mm M54 Screwed Adapter*1 2.5mm 2inch Filter Holder (Original Name 020055) 3mm Spacer*2 0.5mm Spacer*1 16mm M3 Screws*8	—
Combo E1	020110	QHY533M/C / QHY294M/C QHY163M/C / QHY183M/C QHY174M/C	55mm BFL MPCC Canon EF Lens Nikon F Lens	TBA	TBA
Combo F1	TBA	QHY533M + CFW3S-SR	OAGS	TBA	TBA

Diagram Combo A1 QHY294M / QHY163M with Medium Ultra Slim Filter Wheel + Medium OAG

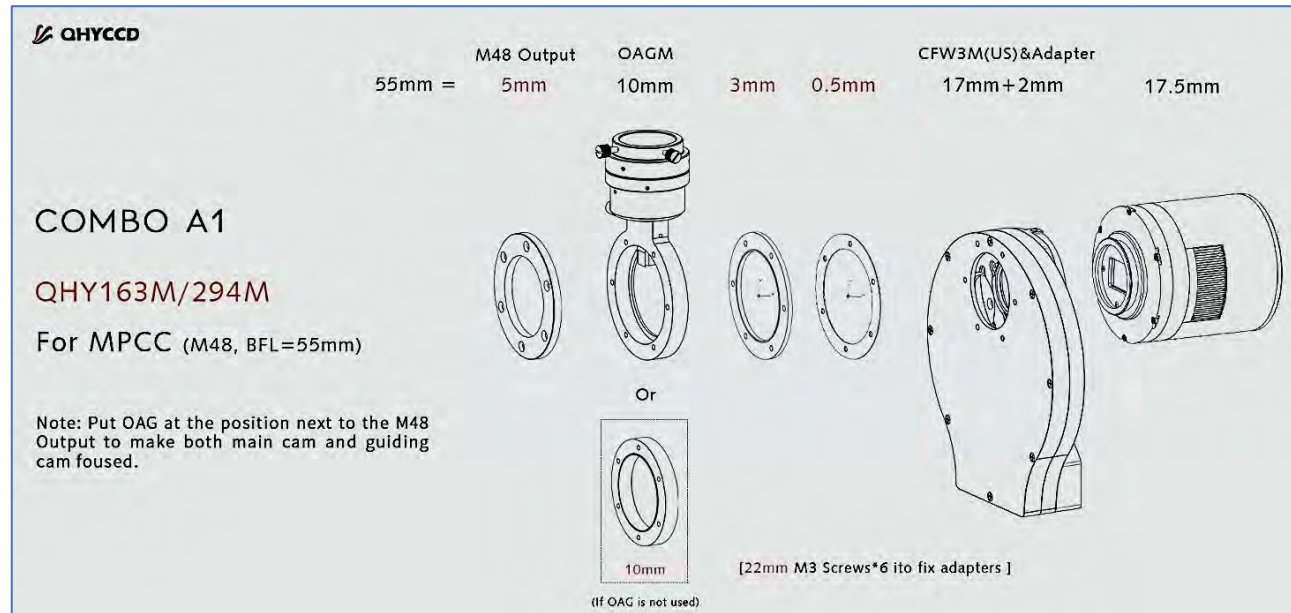


Diagram Combo A2 - QHY294M / QHY163M with Small Ultra Slim Filter Wheel and Canon Lens Adapter

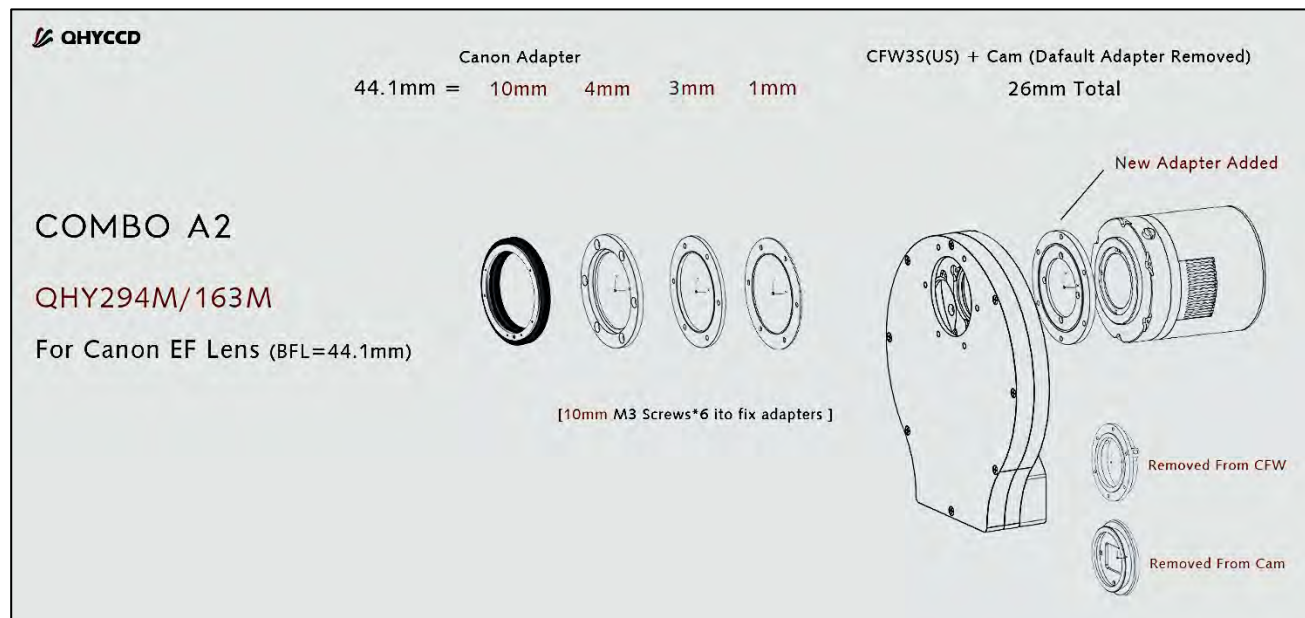


Diagram Combo A3 - QHY294M / QHY163M with Medium Ultra Slim Filter Wheel and Nikon Lens Adapter

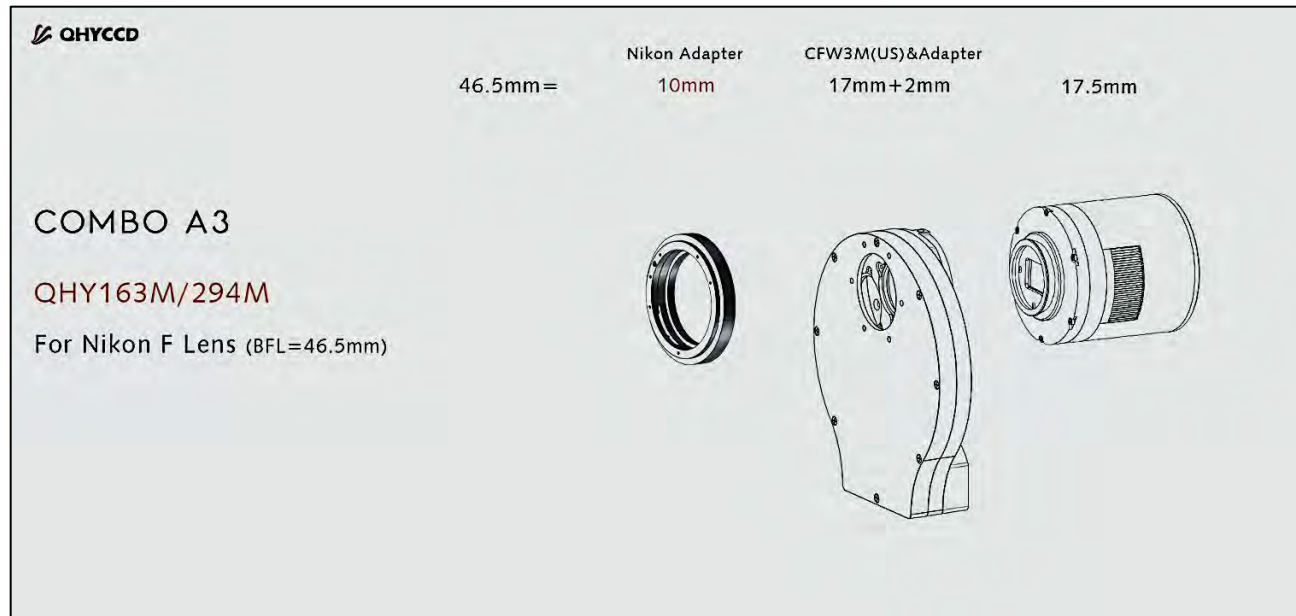


Diagram Combo B1-1 - QHY268M / QHY600 (Short BFL Version) with Large Filter Wheel + Medium OAG

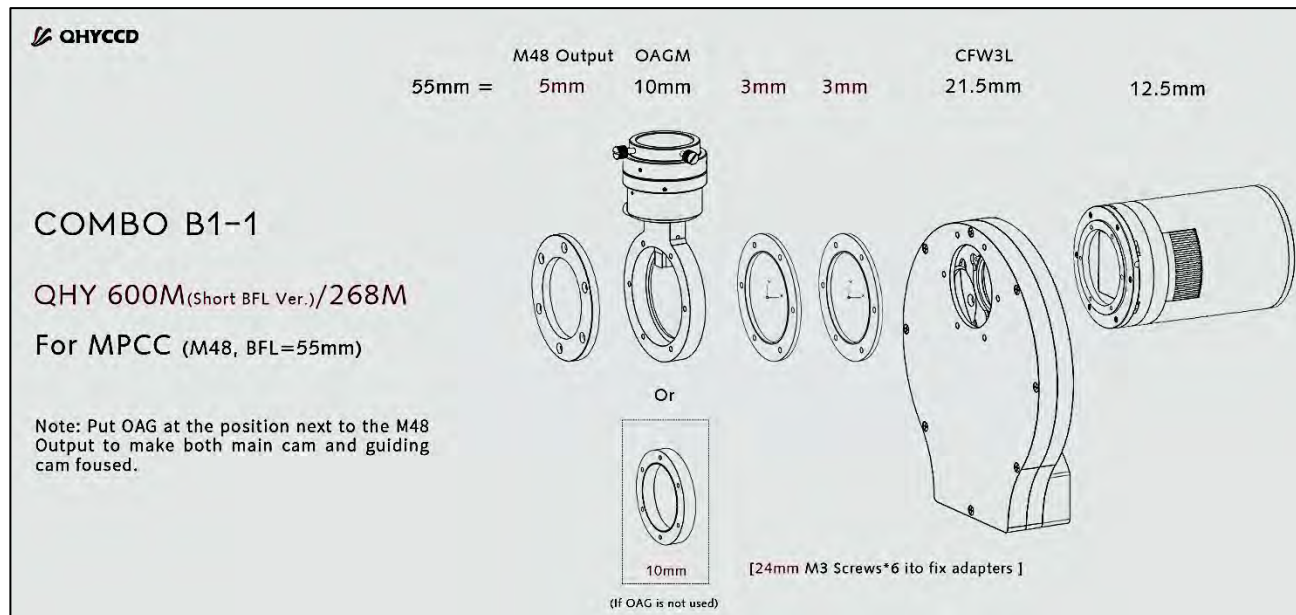


Diagram Combo B1-2 - QHY268M with Medium Ultra Slim Filter Wheel

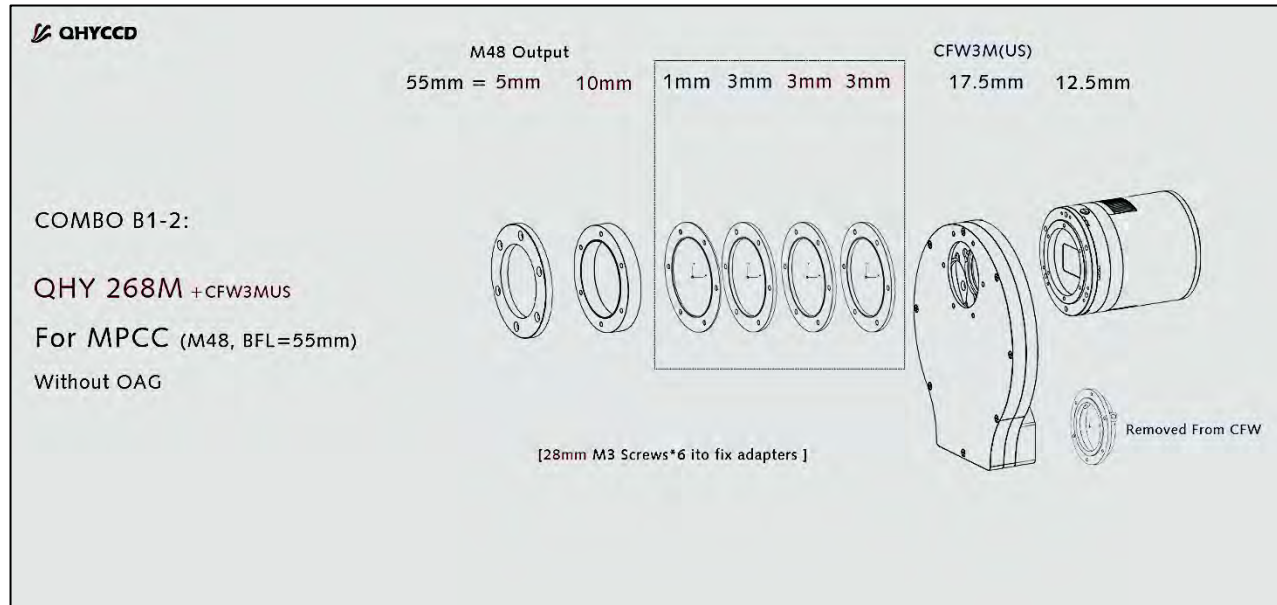


Diagram Combo B1-3 - QHY268M with Medium Ultra Slim Filter wheel + Medium OAG

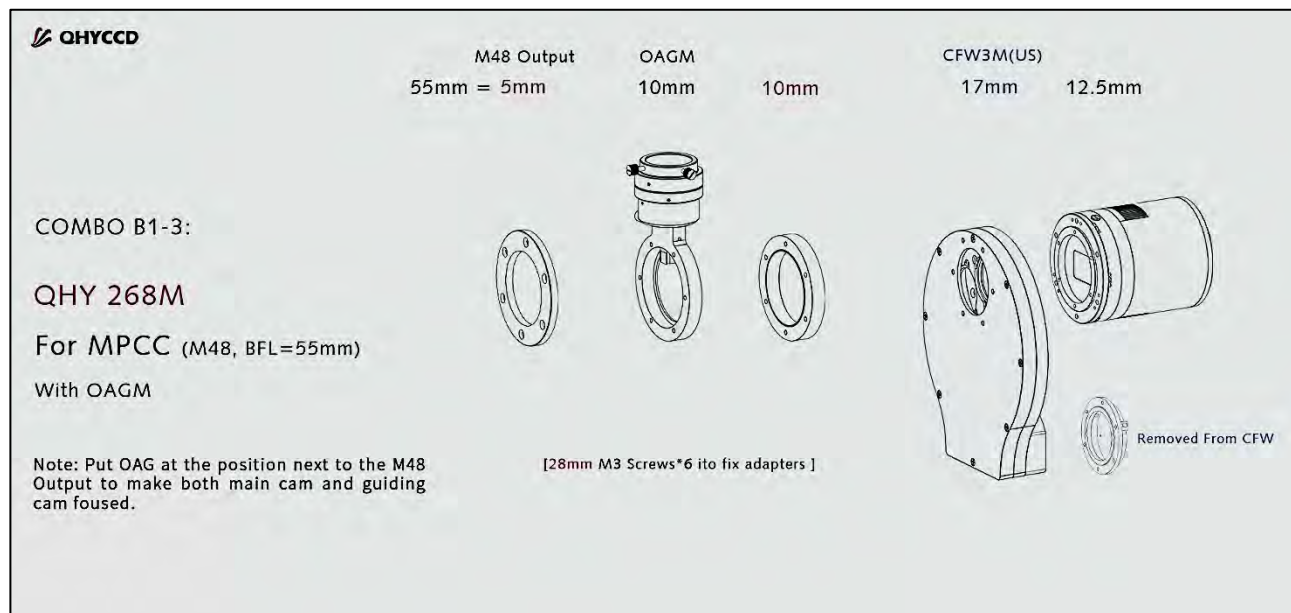


Diagram Combo B2 - QHY268M / QHY600 (Short BFL Version) with Large Filter Wheel + Canon Lens Adapter

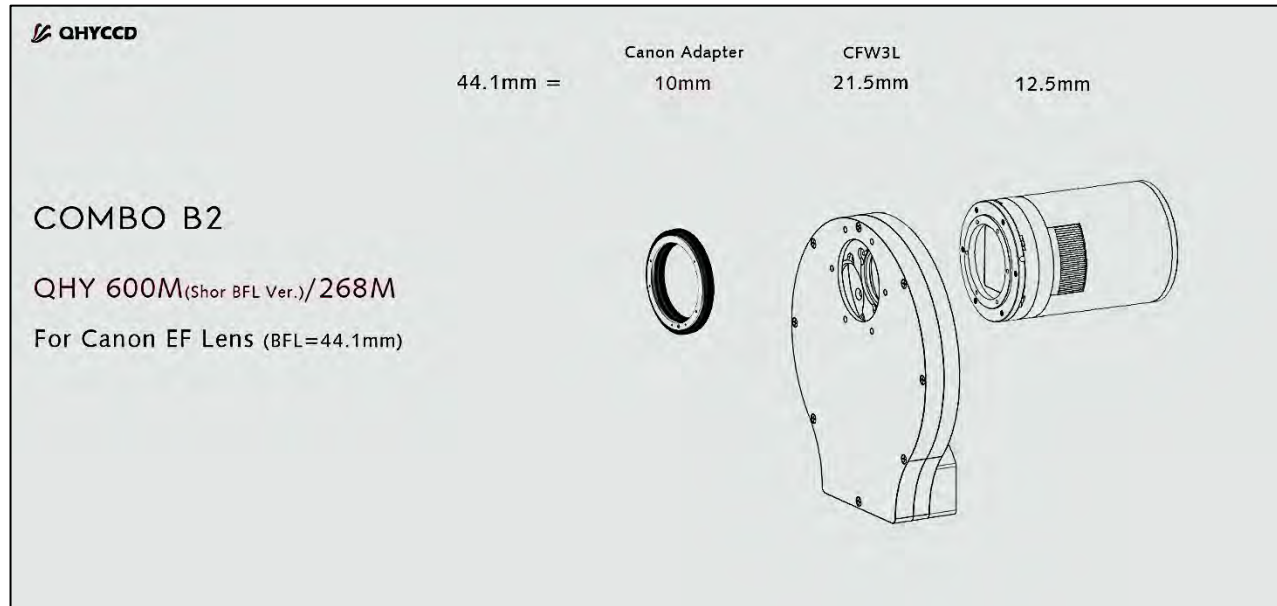


Diagram Combo B3 - QHY269M / QHY600 (Short BFL Version) with Large Filter Wheel + Nikon Lens Adapter

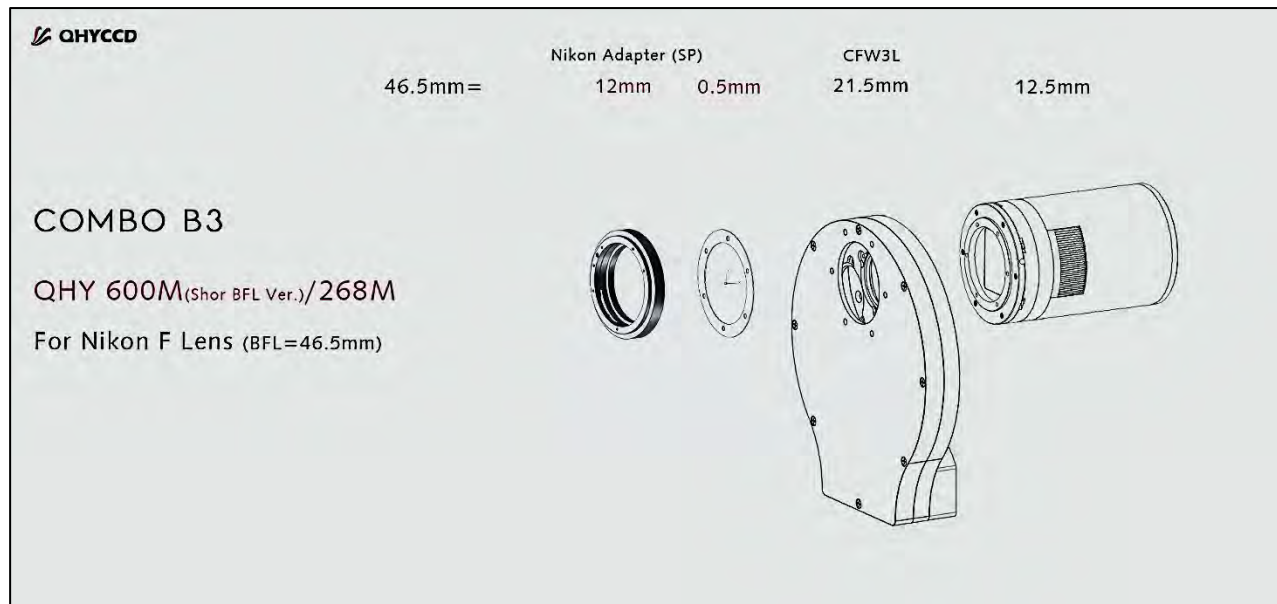


Diagram Combo C1 - QHY600-PH with Large Filter Wheel

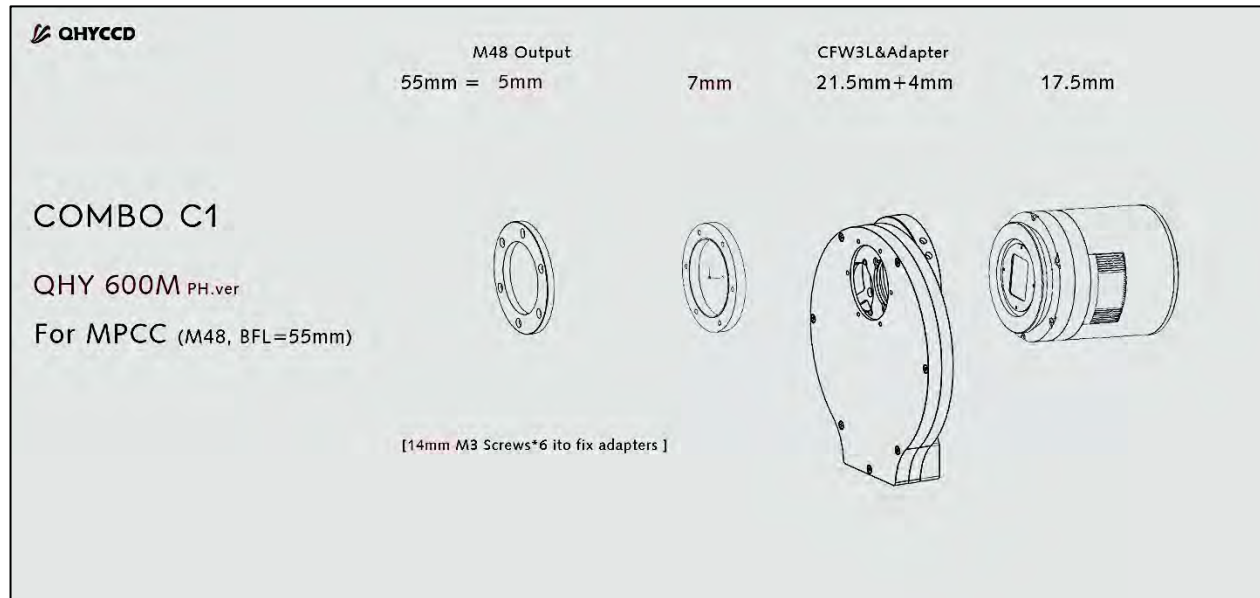


Diagram Combo D1 - QHY600C / 410 C / 367C / 128C / 268C / 247C / 168C with Medium OAG

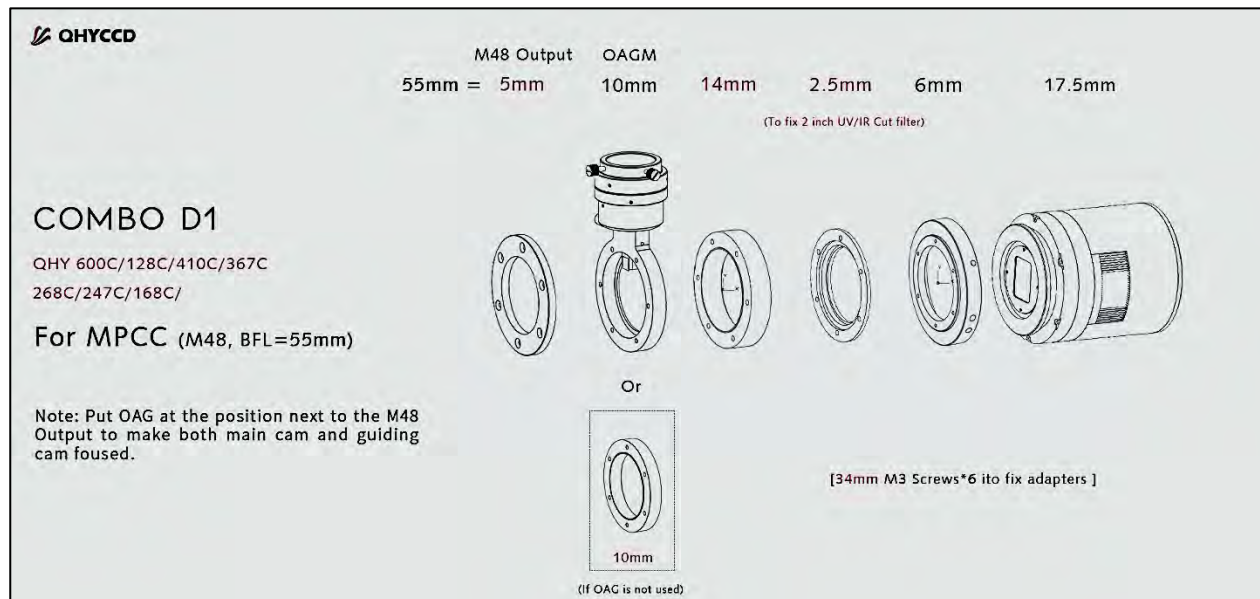


Diagram Combo D2 - QHY600C / 410C / 367C / 128C / 268C / 168C with Canon Lens Adapter

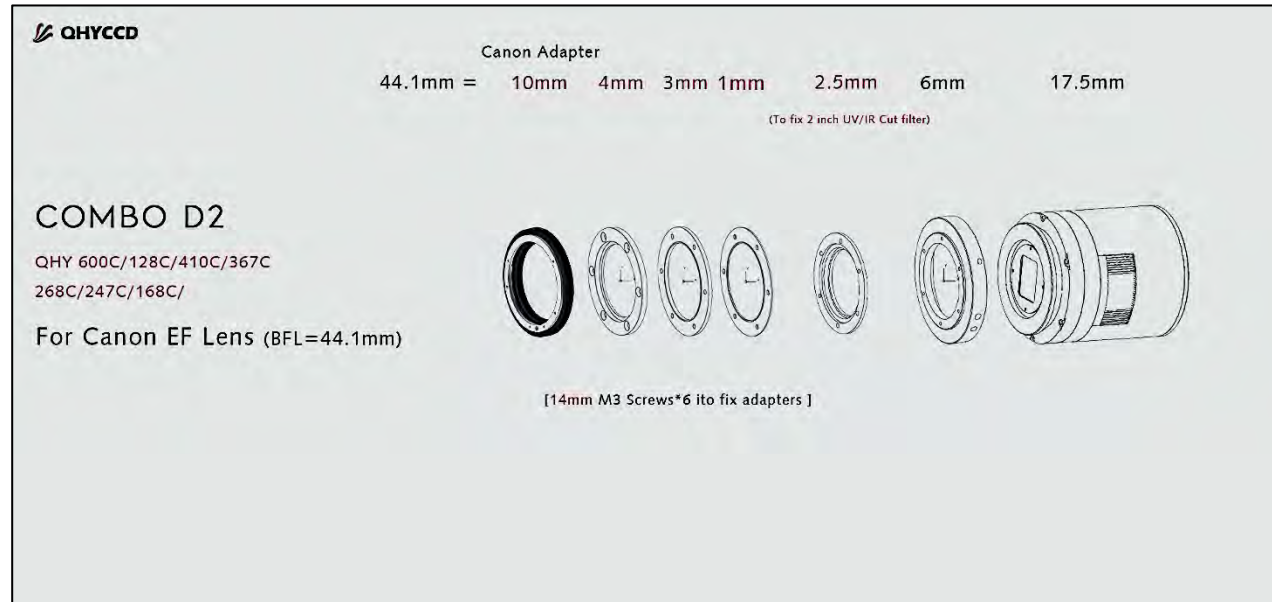


Diagram Combo D3 - QHY600C / 410C / 367C / 128C / 268C / 168C with Nikon Lens Adapter

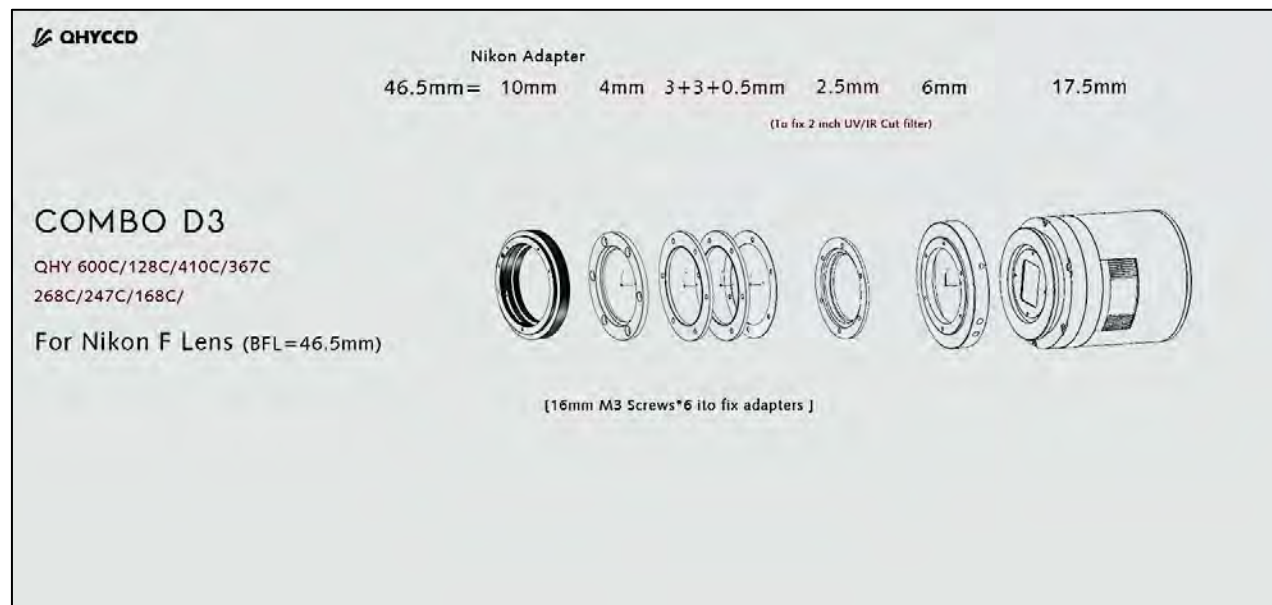


Diagram Combo E1 - QHY533C (Also compatible with QHY294C, QHY183C, QHY163C, QHY174C)

Adapter Kit E1 directly connects the applicable camera to a 55mm BFL M48 interface for MPCC, or to a Nikon or Canon DSLR lens (individual lens adapter ring sold separately). Kit E1 is designed for QHY533C but can also be used with the 294C, 163C, 183C, 174C. It can also be used with the monochrome versions of the listed cameras where a filter wheel or OAG is not needed. For adapting monochrome versions of these models to a filter wheel or OAG, use Kit F1.

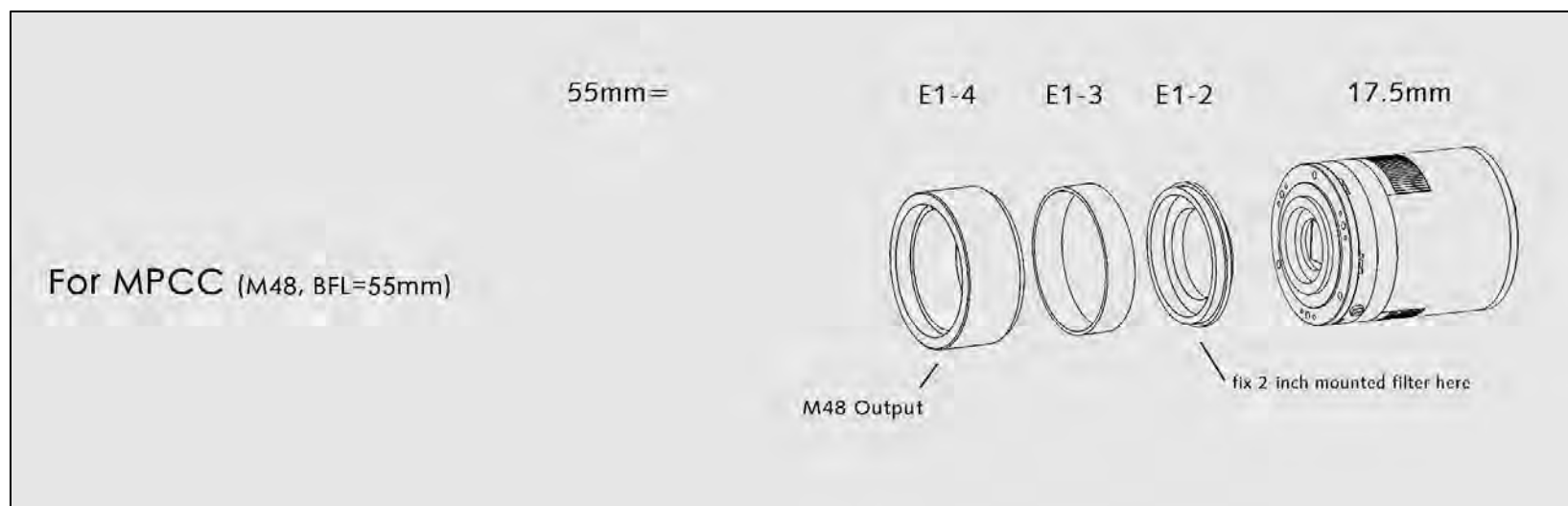
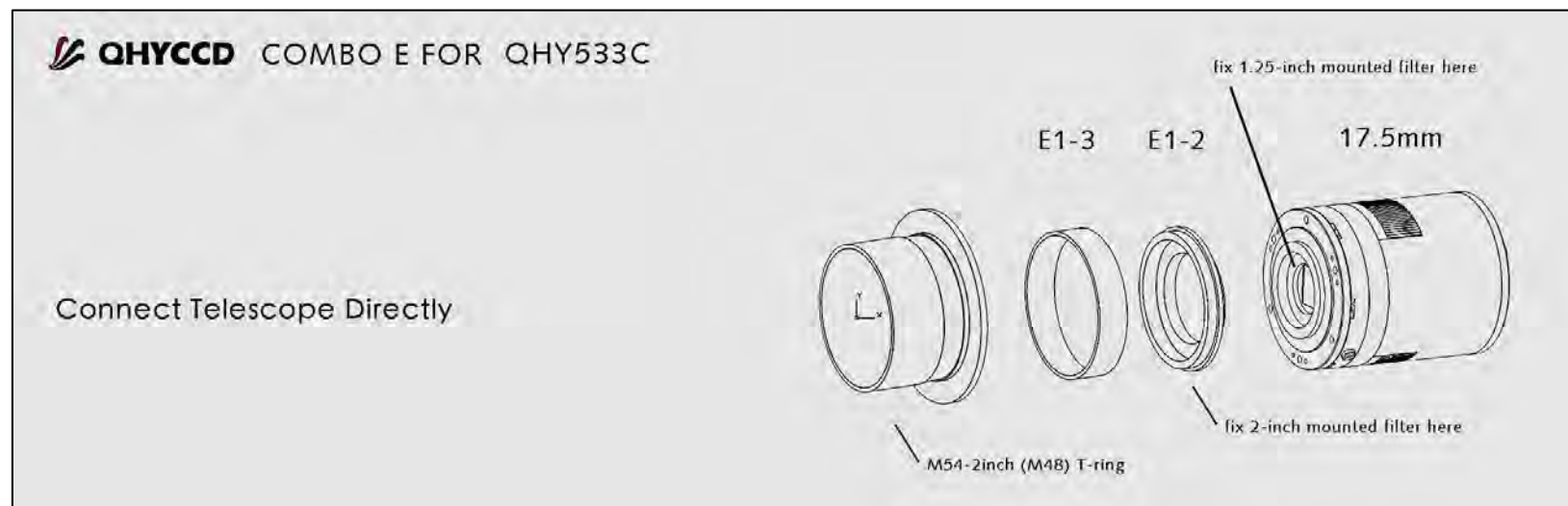
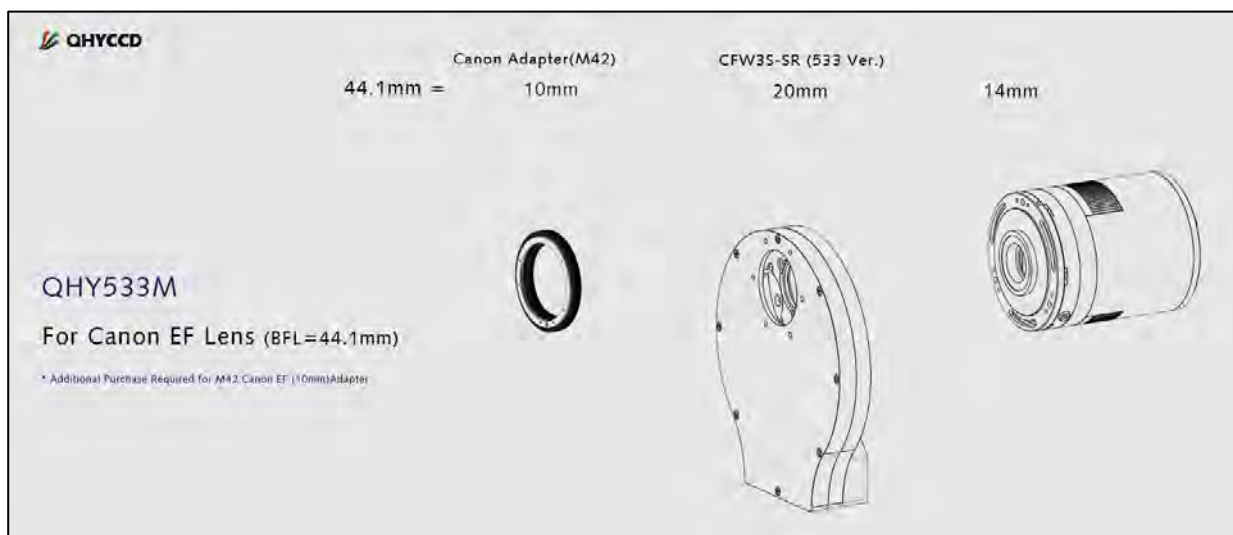
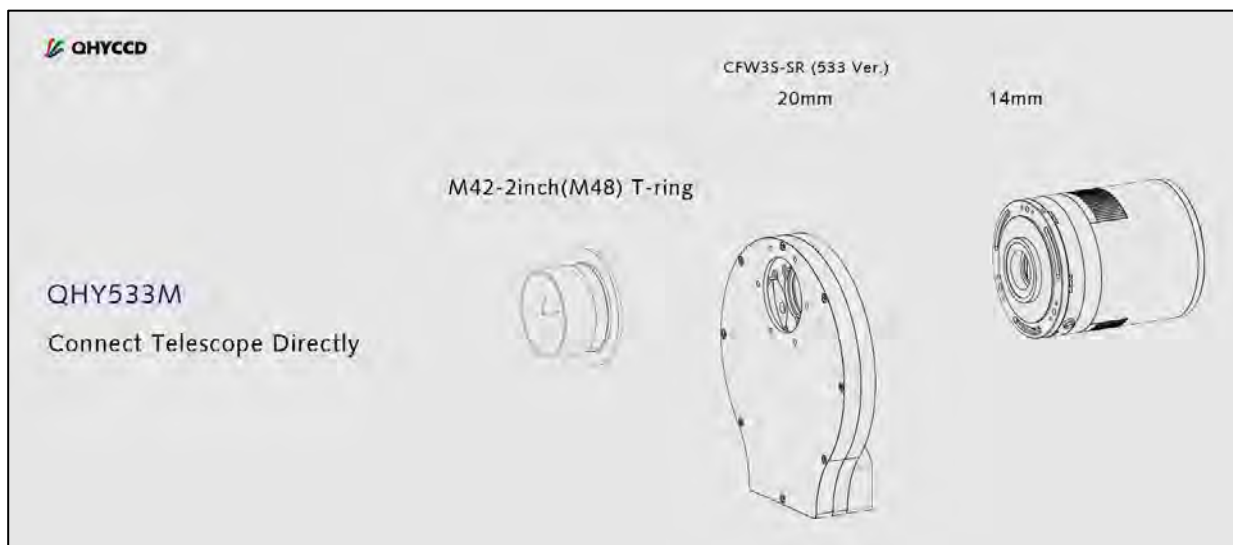
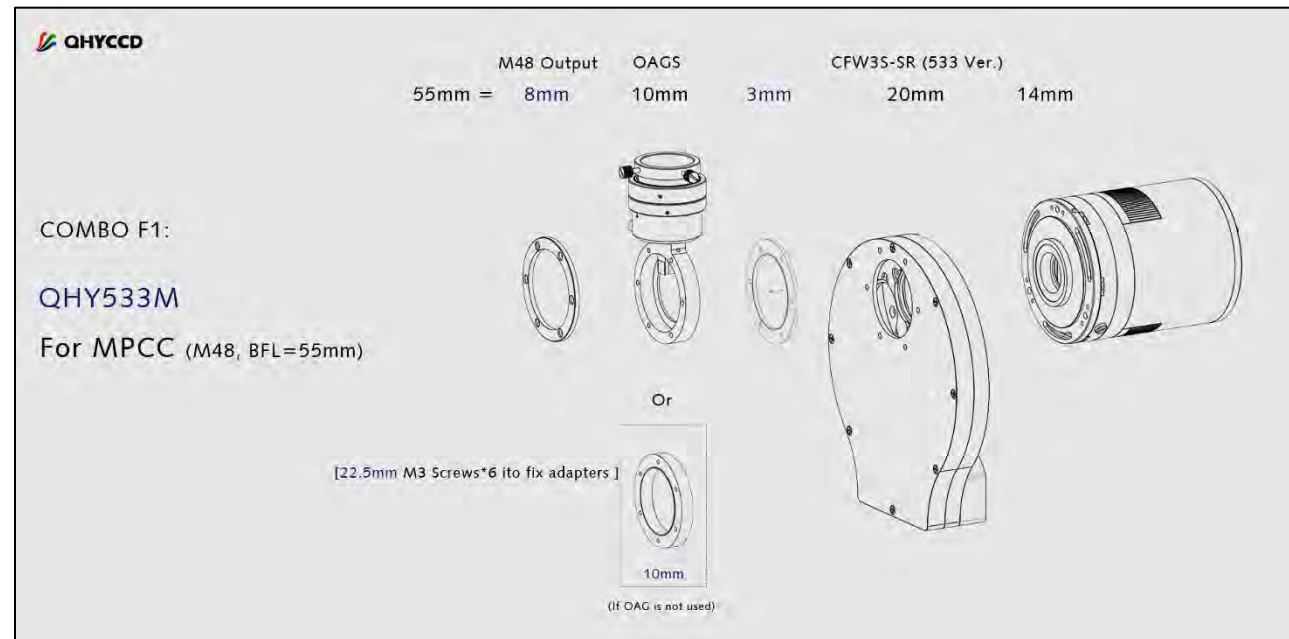
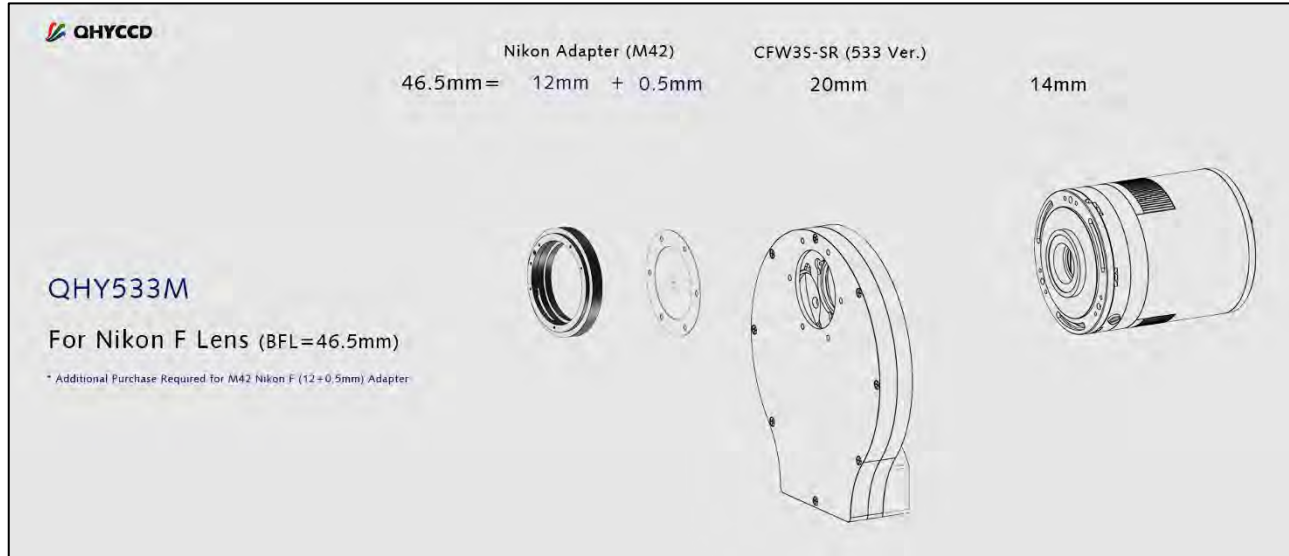




Diagram Combo F1 – QHY533M (Also compatible with QHY294M, QHY183M, QHY163M, QHY174M)

The new front end design of the QHY533M uses external threads allowing the camera to be directly connected to a new small filter wheel without having to open the filter wheel. When the QHY533M + filter wheel combination is connected, a DSLR lens may be used by attaching only a lens adapter (sold separately) for the specific lens. The new small filter wheel is identical to the CFW3S but with a special adapter included for the QHY533M camera. Specify QHYCFW3S-533 when ordering the filter wheel.





All-In-One Adapter Kits

What if none of the above solutions meet my needs?

First please confirm whether there are really strict requirements of BFL on your equipment. If not, just use a standard T-ring to connect the telescope.

If you are using a unique combination of equipment, please see if the existing plan can be applied. For example, if a color camera still needs to be matched with a filter wheel and MPCC, you can refer to the scheme of monochrome camera with a filter wheel and MPCC.

If all the existing package solutions cannot meet the demand, such as the situation where the BFL requirement is very special, we also offer an all-in-one accessory package which contains nearly all kinds of adapters we provide. The 0.5, 1,2,3,7 and 14mm spacers can be combined to make any back focus need from **0.5mm to 27.5mm**. There are two All-In-One Adapter kits, M42 for smaller camera bodies and M54 for larger cameras.

Diagram All-In-One M42 Kit - QHY183M with Small Ultra Slim Filter Wheel and Small OAG

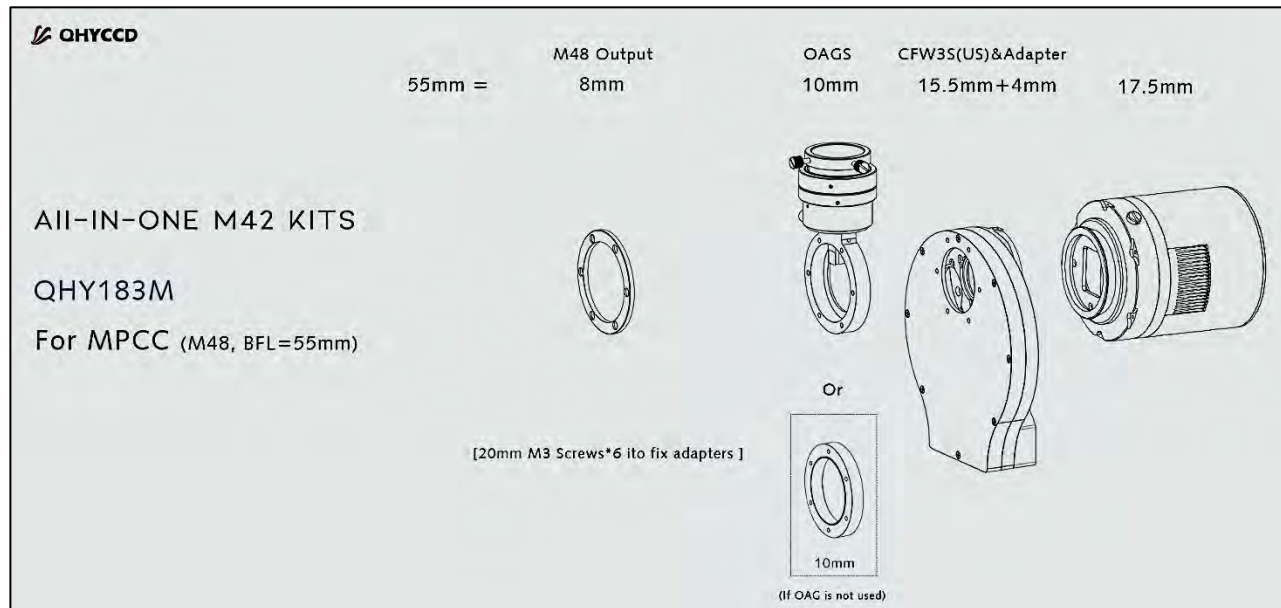


Diagram All-In-One M42 Kit - QHY183M with Small Ultra Slim Filter Wheel and Canon Lens Adapter

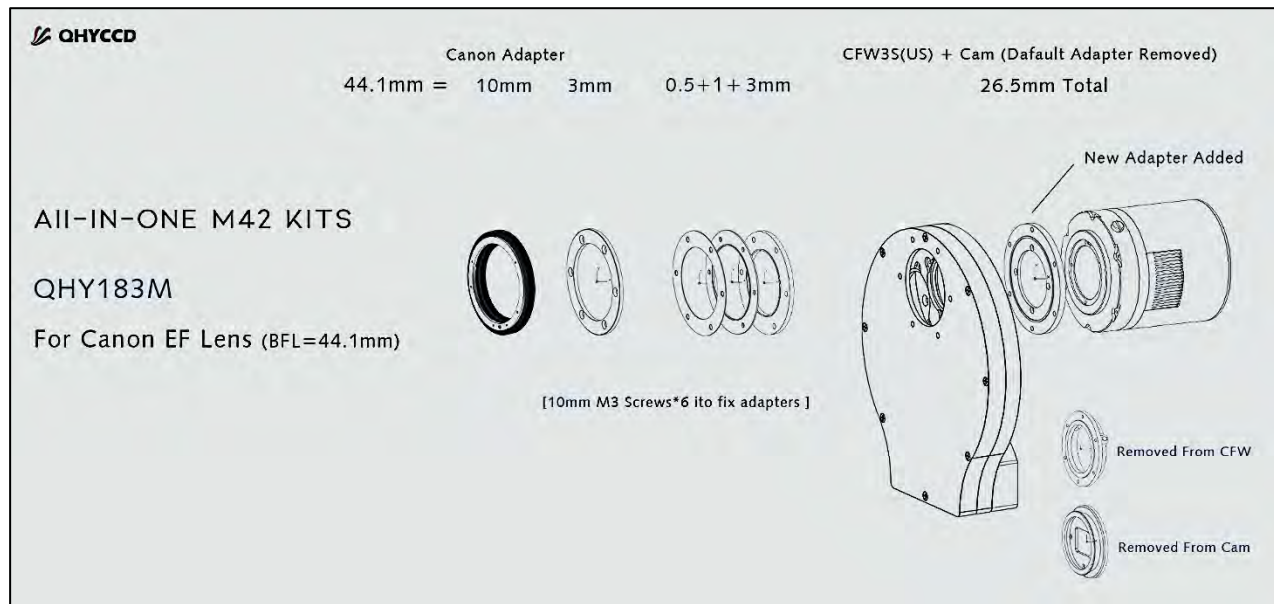


Diagram All-In-One M42 Kit - QHY183M with Small Ultra Slim Filter Wheel and Nikon Lens Adapter

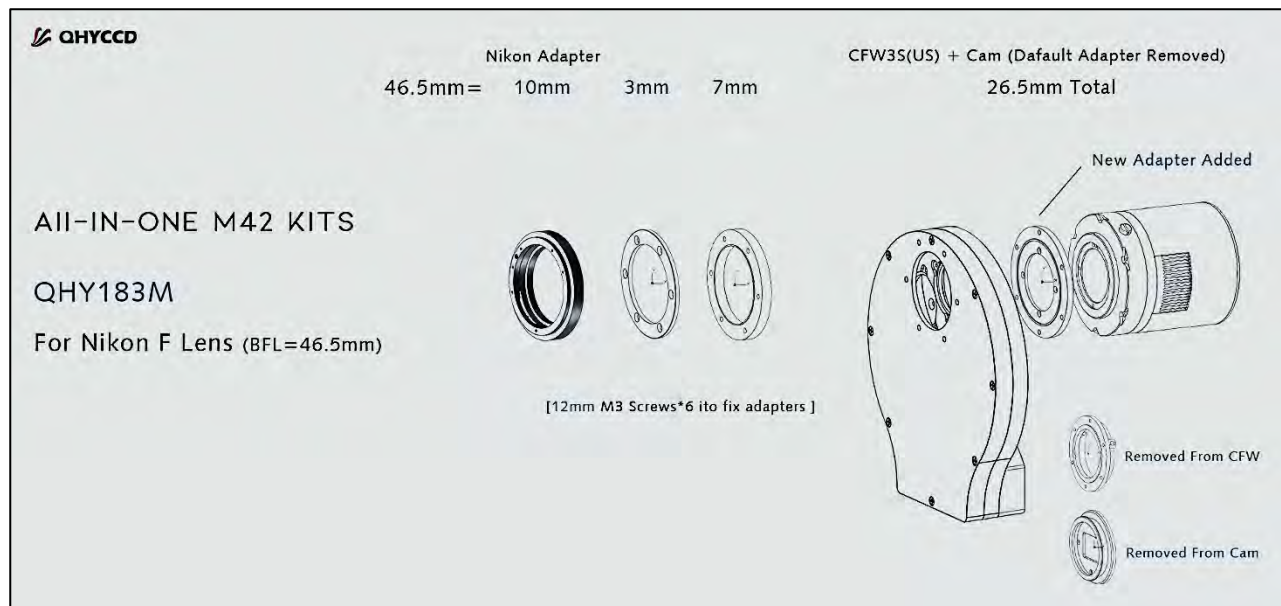


Table 2. New All-in-One Adapter Kits

Model	Compatible with	Includes
M42 All-in-one Kit	QHY183M CFW3S-SR CFW3S-US OAGS	8mm M42 to M48 Adapter*1 3mm M42 Screwed Adapter*1 Cam Top Adapter (original name 020063)*1 0.5mm/1mm/2mm/3mm/7mm/10mm Spacer*1 21mm M3 Screws*8 10mm M3 Screws*8 12mm M3 Screws*8
M54 All-in-one Kit	Most Larger Cooled CMOS Cameras CFWM-SR CFWM-US CFWL OAGM	5mm M54 to M48 Adapter*1 3mm M54 to M42 Adapter*1 2.5mm 2inch Filter Fixer (Original Name 020055) *1 4mm M54 Screwed Adapter (Original name 020070)*1 Cam Top Adapter (original name 020063)*1 0.5mm/1mm/2mm/3mm/7mm/10mm/14mm Spacer*1 8mm M3 Screws*8 10mm M3 Screws*8 12mm M3 Screws*8 14mm M3 Screws*8 16mm M3 Screws*8 21mm M3 Screws*8 24mm M3 Screws*8 28mm M3 Screws*8 36mm M3 Screws*8 50mm M3 Screws*8

Table 3. Single adapter pieces

Model	Image	Previous Name / Part #
10mm M54 Canon EF Adapter (Combo B2)		020071
10mm M54 Nikon F Adapter (Combo A3)		020073
10mm M42 Canon EF Adapter		020072
10mm M42 Nikon F Adapter		020074
2 Inch Filter Fixer		020076&020077
All-kind PoleMaster Adapters	—	—

Table 4. Changes to Prior Sets

The release of the new adapter system in 2021 replaced the previous standard accessory sets of the following models with the new kits:

Model	Old Standard Accessory Sets	Replaced with these new Standard Accessory Sets
QHY600M-PH	5mm M54 to M48 Adapter*1 4mm M54 Screwed Adapter (020070)*1 Spacer Kits (020087)*1	Combo C1 5mm M54 to M48 Adapter*1 7mm Spacer*1 14mm M3 Screws*8
QHY600M Short Back Focus Version	5mm M54 to M48 Adapter*1 4mm M54 Screwed Adapter (020070)*1 Spacer Kits (020087)*1	Combo B1 5mm M54 to M48 Adapter*1 3mm Spacer*3 1mm Spacer*1 10mm Spacer*1 24mm M3 Screws*8 28mm M3 Screws*8
QHY268C QHY600C	5mm M54 to M48 Adapter*1 4mm M54 Screwed Adapter (020070)*1 Spacer Kits (020087)*1	Combo D1 5mm M54 to M48 Adapter*1 2.5mm 2inch Filter Fixer (Original Name 020055) 10mm Spacer*1 14mm Spacer*1 36mm M3 Screws*8

Appendix A. Connecting to CFW3XL Filter Wheel

Filter Compatibility

The QHYCFW3XL (Extra Large) filter wheel comes with two filter carousels. One carousel holds 7 x 50mm square filters. The other carousel holds 9 x 50mm round unmounted (only) filters. The carousels are interchangeable. The 9 x 50mm is designed for maximum illumination using 50mm (up to 50.8mm) round unmounted filters. As of this update, It is not threaded for filters mounted in 2-inch cells with 48mm threads. However, 2-inch mounted filters may still be installed, if desired, by using the filter clips that are supplied for 50mm round unmounted filters.

Camera Compatibility

Due to the larger filter area and large sensor size supported, the XL filter wheel has a larger mounting hole pattern than other QHY filter wheels (68mm diameter, center to center vs. 62mm). For this reason QHY provides a special bayonet style dovetail ring adapter that fits the XL filter wheel and allows the use of cameras with standard bodies and a dovetail ring front end such as the QHY600M-PH (image A below).

UPDATE: Other adapters designed for the medium and large filter wheels and cameras with front ends designed to mount directly to the hole pattern of the CFW3M and CFW3L filter wheels will not bolt directly to the CFW3XL filter wheel. An example of this is the QHY600M-SBFL camera which has no dovetail ring and a mounting hole pattern designed to be bolted directly to the CFW3L filter wheel. So, for the QHY600M-SBFL (or QHY268M-SBFL), QHYCCD offers a new adapter ring specifically for attaching a camera with SBFL body to the CFW3XL filter wheel (Image B below). This adapter ring can also be used to attach an OAG-L to the CFW3XL. See <https://www.qhyccd.com/qhy600sbfl-cfw3xl-adapter/>



Image A.
QHY600M-PH with QHYCFW3XL



Image B.
Adapter for QHY600M-SBFL and QHYCFW3XL

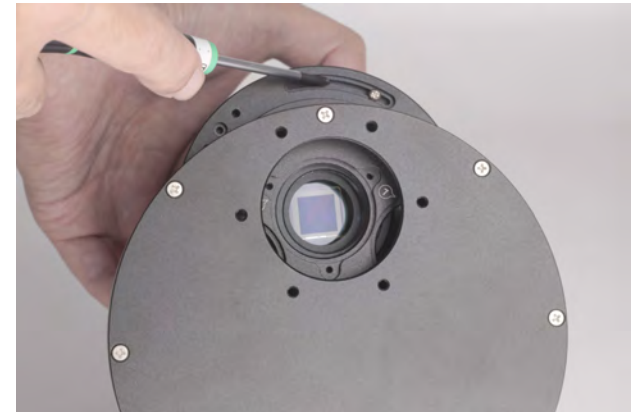
Appendix B. Connecting the QHY533 to a CFW3S-SR Filter Wheel

New CFW3S-SR Configuration for the QHY533

The QHY533M monochrome camera has a threaded interface that can be directly connected to the small filter wheel. Concurrent with the release of the QHY533M, QHYCCD will offer a special version of the CFW3S filter wheel that can be assembled directly to the camera by the user without opening the filter wheel cover or removing the carousel. Due to the short back focus design, when the QHY533M is connected to the CFW3S filter wheel, a Nikon or Canon lens adapter may be added to connect a camera lens to the filter wheel and achieve infinity focus.

Orientation Adjustment

The QHY533M uses threads to connect to the QHYCFW3S. Since the sensor has a square aspect ratio, its orientation may not matter to the user. However, if the user wants to change the orientation of the camera so that the x and y axis of the sensor align with the telescope's RA and Dec, for example, the user can adjust the front plate of the 533M to rotate the orientation of the camera to his/her liking.



Appendix C. Connecting a Planetary Camera to the CFW3S Filter Wheel

Many planetary imagers prefer to use a monochrome camera and filters to capture planetary images. This new adapter is designed for connecting QHY planetary cameras (mono) and QHYCFW3S (SR or US version):

