

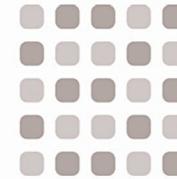
# I2R LABS

IDEAS INTO REALITY



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## I2R Labs Dual-Arm Fiber Optic Y-Coupler

Precision Light Splitting for Illumination and Detection in Spectroscopy



The I2R Labs Dual-Arm Fiber Optic Y-Coupler is a high-precision optical probe designed to split or combine light efficiently for use in reflectance, fluorescence, or dual-source illumination setups. Featuring two independent fiber bundles (SU900/630/600AE.22 and SU600/420/400AE.22) joined into a common SMA905 output, this Y-probe is ideal for biomedical, analytical, and material sensing applications.



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### Key Features:

#### Dual Fiber Bundle Configuration :

- One arm (SU900/630/600AE.22)
- Second arm (SU600/420/400AE.22)
- Combined at a single SMA905 output

#### Efficient Light Transfer Design :

- Merged structure allows simultaneous illumination and collection
- Suitable for spectrometer + light source coupling or dual detection

#### SMA905 Standard Connector :

- Industry-standard interface for maximum compatibility
- Enables plug-and-play with spectrometers and light sources

#### Precision Mechanical Design :

- Toleranced construction for repeatable alignment
- High-quality protective sheathing with reinforced connectors

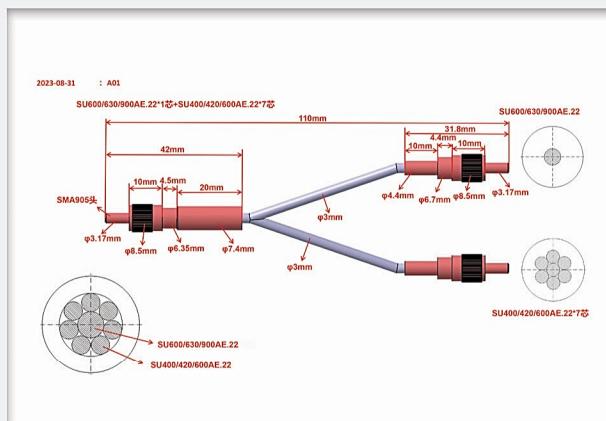
### Advantages

- Compact, rugged Y-design with high optical throughput
- Combines light paths without additional optics
- Allows dual-purpose operation (excitation + collection)
- Compatible with wide spectral range (UV-NIR depending on fiber type)

### Technical Drawing Summary

#### Parameter Value

- Main Output Length 42 mm
- Split Arm Length 110 mm
- Output Connector SMA905
- Main Ferrule Diameter  $\varphi 3.17$  mm
- Main Outer Jacket  $\varphi 7.4$  mm
- Split Arm Jacket Diameter  $\varphi 3$  mm
- Split Arm Ferrule Diameters  $\varphi 6.7$  mm and  $\varphi 6.35$  mm housing
- Bundle Core Types SU900/630/600AE.22 & SU600/420/400AE.22
- Total Ferrule Grip Section  $\varphi 8.5$  mm with 10 mm and 4.5 mm support ends



### Standard Kit Includes

- Dual-arm Y-fiber optic probe (configured as per drawing)
- SMA905 connector sleeve
- Optional: Ferrule protective caps
- Custom lengths and fiber types available on request

Split Light. Capture More. Optimize Detection.  
Engineered by I2R Labs for hybrid optical measurements in compact systems.

### Applications:

#### Reflectance Spectroscopy :

Illuminate with one arm, collect reflected light with the other

#### Fluorescence Sensing :

Deliver excitation light and collect emission without cross-talk

#### Biological and Chemical Analysis :

Ideal for in-vitro, liquid-phase, and surface studies

#### Portable Optical Systems :

Perfect for compact devices needing dual fiber routing

#### LED + Spectrometer Dual Coupling :

Use one fiber for illumination (LED), the other for detection (spectrometer)

