



# EXTENDED WIDEBAND OCT COUPLER (EWOC)

## Fused Fiber Coupler

### DATASHEET

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Fiber optic couplers are used in the optical coherence tomography (OCT) light engine to form the interferometer that OCT systems use to generate depth information.

Our EWOC has been developed to provide market leading performance for use in high resolution OCT imaging systems employing next generation wideband wavelength-swept sources.

The EWOC splits over an extended bandwidth and can be ordered to operate at any of the popular OCT wavelength bands (850 nm, 1060 nm and 1310 nm).

Designed for low loss and extended bandwidth operation, the coupler utilizes Gooch & Housego's proprietary fused fiber technology.

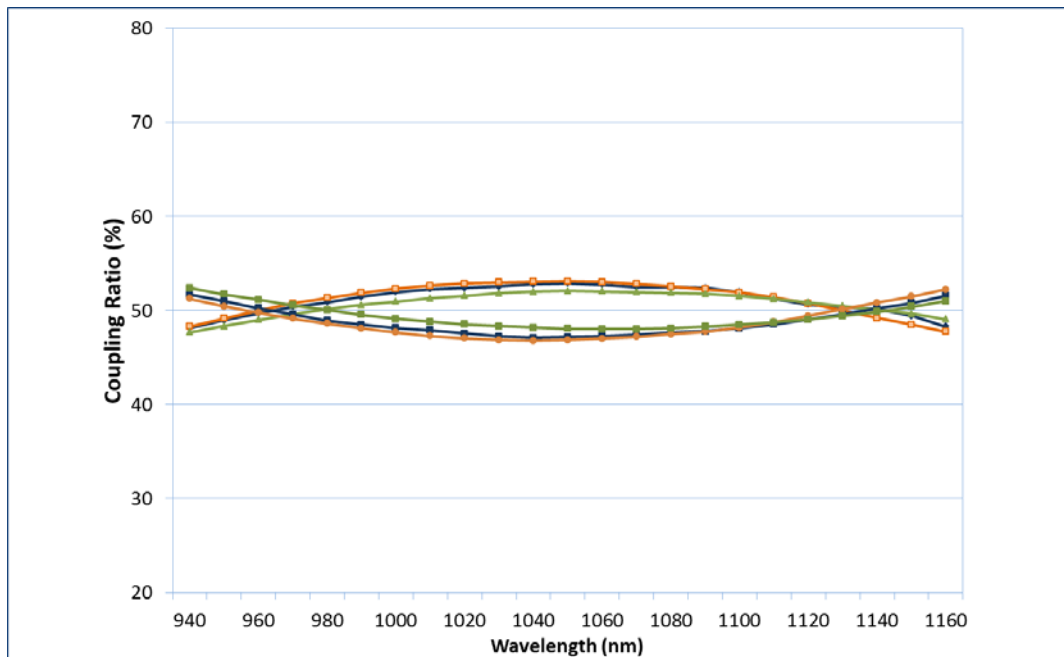


#### Key Features

- Extended bandwidth
- Any coupling ratio available
- Very low light loss
- Various fiber options available

#### Associated Documents

- OCT coupler 850 nm and 1310 nm
- OCT coupler 1060 nm
- OCT fiber collimators
- OCT coupler application note



Sample of 50/50% couplers plotted in the wavelength range 940 - 1160 nm.

## Typical Optical Specifications<sup>6</sup>

| Coupling Ratio <sup>1</sup> | Measured Bandwidth <sup>4</sup> | 850nm Band Excess Loss (dB) <sup>2,3</sup> | 1060 and 1310nm Band Excess Loss (dB) <sup>2,3,5</sup> | 850nm Band Coupling Ratio Tolerance <sup>2,3</sup> | 1060 and 1310nm Band Coupling Ratio Tolerance <sup>2,3</sup> |
|-----------------------------|---------------------------------|--|--|--|--|
| 90/10                       |                                 |  |  | ±3.0%  | ±2.5%  |
| 80/20                       |                                 |  |  | ±3.5%  | ±3%  |
| 75/25                       | ±100nm                          | 0.50 (typ < 0.30)                          | 0.30 (typ < 0.15)                                      | ±3.75%   | ±3.25%   |
| 70/30                       |                                 |  |  | ±4.0%  | ±3.5%  |
| 67/33                       |                                 |  |  | ±4.25%   | ±3.7%  |
| 60/40                       |                                 |  |  | ±5.0%  | ±4.0%  |
| 50/50                       |                                 |  |  | ±6.5%  | ±5.0%  |

<sup>1</sup> Any coupling ratio available. Please contact sales office for details on coupling ratios not listed.

<sup>2</sup> Measured through P1 input.

<sup>3</sup> Performance through P4 input will closely match P1 - please contact sales office for details.

<sup>4</sup> Performance over entire bandwidth may be limited by the single-mode fiber cut-off.

<sup>5</sup> Excluding water peak band, centered around 1383 nm.

<sup>6</sup> Data supplied at center wavelength.

| Parameter  | Specification  |
|--|--|
| Operating/storage temperature range <sup>1</sup> | -40 - +75°C/-40 - +85°C  |
| Pigtail tensile load                             | 5 N  |
| Fiber type <sup>2</sup>                          | 850 nm: OFS/Furukawa CL 780 11 (CF04247-03)<br>1060 nm: Nufern 1060-XP<br>1310 nm: Corning SMF28 |

<sup>1</sup> For connectorized component, operating temperature range is -5 - +75°C.

<sup>2</sup> Alternative fiber types may be available upon request.

## Housing Option

| Housing Code | Description              | 1x2, 2x2 Dimensions (mm) | Pigtail                  |
|--------------|--------------------------|--------------------------|--------------------------|
| 3            | Regular                  | 3.0 (Ø) x 50 (L)         | Primary-coated fiber     |
| 4            | Ø0.9 mm slim             | 3.0 (Ø) x 60 (L)         | Ø0.9mm loose-tube        |
| 5            | Ø0.9 mm semi-ruggedized  | 5.0 (Ø) x 75 (L)         | Ø0.9 mm loose-tube       |
| 6            | Ø3.0 mm fully-ruggedized | 80 (L) x 10 (W) x 8 (H)  | Ø3.0 mm fan-out sleeving |

## Configuration



## Order code

Order codes are comprised of a standard device prefix (e.g. OCT) followed by code letters or numbers which correspond to available options.

**Sample:** 060K31H10 (OCT Wideband Coupler, 1060 nm center wavelength, 50/50 coupling ratio, regular housing, 1x2 port configuration,  $\pm 100$  nm measured bandwidth, 1 m pigtails, no connectors).

| Order code |   |          |          | ①            | ②     | ③                         | ④      | ⑤                                    | ⑥       | ⑦                                     | ⑧ | ⑨ |
|------------|---|----------|----------|--------------|-------|---------------------------|--------|--------------------------------------|---------|---------------------------------------|---|---|
| <b>O</b>   | <b>C</b>                                    | <b>T</b> | <b>-</b> |              |       |                           |        |                                      |         |                                       |   |   |
| ①          | <b>Passband</b>                             |          |          | 8xx          |       | 10XX nm                   |        |                                      | 13XX    |                                       |   |   |
|            | Code  |          |          | 8            |       | 0                         |        |                                      | 3       |                                       |   |   |
| ②          | <b>Last two digits of center wavelength</b> |          |          | XX10 nm      |       | XX32 nm                   |        |                                      | XX57 nm |                                       |   |   |
| ③          | Code  |          |          | 10           |       | 32                        |        |                                      | 57      |                                       |   |   |
| ④          | <b>Coupling ratio<sup>2</sup></b>           |          |          | 10%          | 20%   | 25%                       | 30%    | 33%                                  | 40%     | 50%                                   |   |   |
|            | Code  |          |          | A            | C     | D                         | E      | F                                    | H       | K                                     |   |   |
| ⑤          | <b>Housing<sup>4</sup></b>                  |          |          | Regular      |       | $\varnothing 0.9$ mm slim |        | $\varnothing 0.9$ mm semi-ruggedized |         | $\varnothing 3.0$ mm fully ruggedized |   |   |
|            | Code  |          |          | 3            |       | 4                         |        | 5                                    |         | 6                                     |   |   |
| ⑥          | <b>Port Configuration</b>                   |          |          | 1x2          |       |                           |        | 2x2                                  |         |                                       |   |   |
|            | Code  |          |          | 1            |       |                           |        | 2                                    |         |                                       |   |   |
| ⑦          | <b>Measured bandwidth</b>                   |          |          | $\pm 100$ nm |       |                           |        |                                      |         |                                       |   |   |
|            | Code  |          |          | H            |       |                           |        |                                      |         |                                       |   |   |
| ⑧          | <b>Pigtail length<sup>1</sup></b>           |          |          | 0.5 m        |       |                           |        | 1 m                                  |         |                                       |   |   |
|            | Code  |          |          | 0            |       |                           |        | 1                                    |         |                                       |   |   |
| ⑨          | <b>Connector<sup>1,3,4</sup></b>            |          |          | None         | FC/PC | FC/APC                    | SC/APC | FC/UPC                               | SC/UPC  | LC <sup>3</sup>                       |   |   |
|            | Code  |          |          | 0            | 1     | 3                         | 5      | 9                                    | A       | B                                     |   |   |

1 Minimum pigtail length. Further pigtail lengths available on request. Where connectorized, pigtail length is to connector end face.

2 Any coupling ratio available. Please contact G&H for ordering codes of coupling ratios not listed.

3 LC connector not available for housing code 6, fully ruggedized housing.

4 Connectors may be fitted to housing types 4, 5 and 6. For connectorization of housing type 3 please contact the sales office.

## For further information

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