

Fiber Optics, Plastic Types FUR, FUT

CARLO GAVAZZI



- Inner fiber diameter $\varnothing 0.25, 0.5$ or 1.0 mm
- Outer fiber diameter $\varnothing 2.2, 1.25$ mm
- Bending radius 10, 15 or 25 mm
- For use with fiber optic sensor amplifier FA series
- Overmoulding protection for better curvature and protection from breakage of fiber
- High tensile strength of 8 kg ensuring reliability and durability
- 2000 mm fiber length



Over moulding for better curvature protection

Ordering Key

FU R C 6 -20 /S10

Fiber unit

Fiber type

- R Reflective
- T Through-beam

Fiber diameter

- O 1.0 mm/ $\varnothing 2.2$
- C 0.25 mm x 10/0.5 mm x 1
- A 0.25 mm/ $\varnothing 1.25$
- D 0.5 mm/ $\varnothing 1.25$
- S 0.5 mm/ $\varnothing 2.2$

Head diameter

- 6 M6
- 4 M4
- 3 M3

Fiber length 2000 mm

Options

- /E Extended range
- /A Angled
- /S10 Sleeve 10 mm
- /S20 Sleeve 20 mm
- /S40 Sleeve 40 mm
- /S90 Sleeve 90 mm

Note:

1. Not every combination is available.
2. Please see Type Selection section to see availability
3. Sleeve option is not available if you choose extended range (/E) or angled (/A) version

General Specifications

Temperature range

Operating temperature

-55 to +70°C (-67 to +158°F)

Materials

Fiber
Sheath
Detection head

PMMA
PE (polyethylene)
SUS303

Note 3:

FURO6-20/E, FURD4-20/E,
FURD3-20/E, FUTO4-20/E,
FUTO3-20/E head is made
of nickel plated brass

Type Selection

Reflective types						
Inner diameter	Max. detection distance (mm)*	Smallest detectable object	Min. bend radius	Dimensions (mm)**	Weight (g)	Ordering key
Ø1.0 x 2	90	Ø0.50	R25		38	FURO6-20 FURO6-20/S10 FURO6-20/S20 FURO6-20/S40 FURO6-20/S90
Ø1.0 x 2	60	Ø0.50	R25		30	FURO6-20/A
Ø1.0 x 2	100	Ø0.50	R25		38	FURO6-20/E***
Ø1.0 x 1, Ø0.265 x 16	90	Ø0.50	R25		38	FURC6-20 FURC6-20/S10 FURC6-20/S20 FURC6-20/S40 FURC6-20/S90
Ø0.5 x 1, Ø0.25 x 10	40	Ø0.05	R15		25	FURC4-20 FURC4-20/S10 FURC4-20/S20 FURC4-20/S40 FURC4-20/S90
Ø0.5 x 1, Ø0.25 x 10	20	Ø0.05	R15		30	FURC4-20/A
Ø0.5 x 1, Ø0.25 x 10	40	Ø0.05	R15		25	FURC3-20 FURC3-20/S10 FURC3-20/S20 FURC3-20/S40 FURC3-20/S90
Ø0.5 x 1, Ø0.25 x 10	20	Ø0.05	R15		29	FURC3-20/A
Ø0.5 x 2	20	Ø0.10	R15		25	FURD4-20 FURD4-20/S10 FURD4-20/S20 FURD4-20/S40 FURD4-20/S90
Ø0.5 x 2	20	Ø0.10	R15		20	FURD4-20/A

***note 1** : Detection distance in the table is based on FA1 amplifier with setting; response time at 5000µS and threshold value at 27 (max setting)

****note 2** : Dimensional drawing shown here is for the standard version (without sleeve).

*****note 3** : Head is made of nickel plated brass

Type Selection (cont.)

Reflective types						
Inner diameter	Max. detection distance (mm)*	Smallest detectable object	Min. bend radius	Dimensions (mm)**	Weight (g)	Ordering key
Ø0.5 x 2	30	Ø0.10	R15		25	FURD4-20/E***
Ø0.5 x 2	20	Ø0.10	R15		24	FURD3-20 FURD3-20/S10 FURD3-20/S20 FURD3-20/S40 FURD3-20/S90
Ø0.5 x 2	20	Ø0.10	R15		20	FURD3-20/A
Ø0.5 x 2	30	Ø0.10	R15		24	FURD3-20/E***
Ø0.25 x 2	7	Ø0.05	R10		16	FURA4-20 FURA4-20/S10 FURA4-20/S20 FURA4-20/S40 FURA4-20/S90
Ø0.25 x 2	5	Ø0.05	R10		21	FURA4-20/A
Ø0.25 x 2	7	Ø0.05	R10		16	FURA3-20 FURA3-20/S10 FURA3-20/S20 FURA3-20/S40 FURA3-20/S90
Ø0.25 x 2	5	Ø0.05	R10		20	FURA3-20/A
Through-Beam types						
Ø1.0	440	Ø0.50	R25		38	FUTO4-20 FUTO4-20/S10 FUTO4-20/S20 FUTO4-20/S40 FUTO4-20/S90
Ø1.0	300	Ø0.50	R25		28	FUTO4-20/A
Ø1.0	490	Ø0.50	R25		38	FUTO4-20/E***

*note 1 : Detection distance in the table is based on FA1 amplifier with setting; response time at 5000µS and threshold value at 27 (max setting)

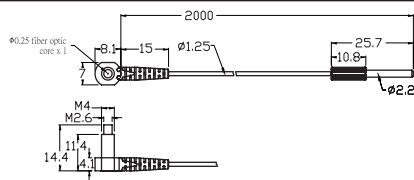
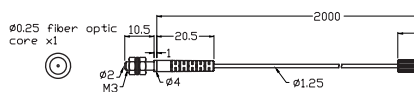
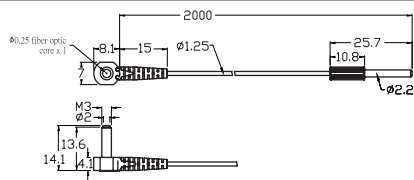
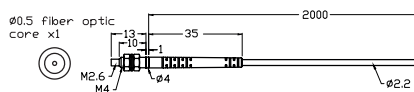
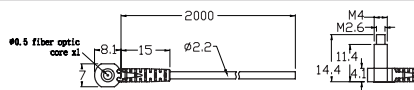
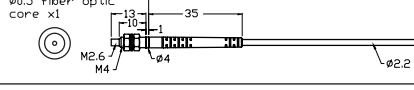
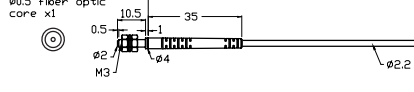
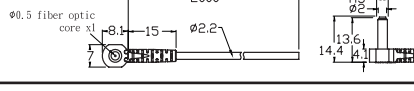
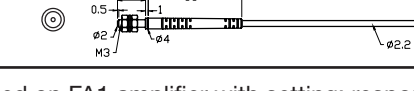
**note 2 : Dimensional drawing shown here is for the standard version (without sleeve).

***note 3 : Head is made of nickel plated brass

Through-Beam types						
Inner diameter	Max. detection distance (mm)*	Smallest detectable object	Min. bend radius	Dimensions (mm)**	Weight (g)	Ordering key
Ø1.0	440	Ø0.50	R25		36	FUTO3-20 FUTO3-20/S10 FUTO3-20/S20 FUTO3-20/S40 FUTO3-20/S90
Ø1.0	300	Ø0.50	R15		28	FUTO3-20/A
Ø1.0	490	Ø0.50	R25		36	FUTO3-20/E***
Ø0.5	160	Ø0.05	R15		28	FUTD4-20 FUTD4-20/S10 FUTD4-20/S20 FUTD4-20/S40 FUTD4-20/S90
Ø0.5	130	Ø0.05	R15		20	FUTD4-20/A
Ø0.5	180	Ø0.05	R15		28	FUTD4-20/E
Ø0.5	160	Ø0.05	R15		28	FUTD3-20 FUTD3-20/S10 FUTD3-20/S20 FUTD3-20/S40 FUTD3-20/S90
Ø0.5	130	Ø0.05	R15		20	FUTD3-20/A
Ø0.5	180	Ø0.05	R25		28	FUTD3-20/E
Ø0.25	30	Ø0.03	R10		20	FUTA4-20 FUTA4-20/S10 FUTA4-20/S20 FUTA4-20/S40 FUTA4-20/S90

***note 3 : Head is made of nickel plated brass

Type Selection (cont.)

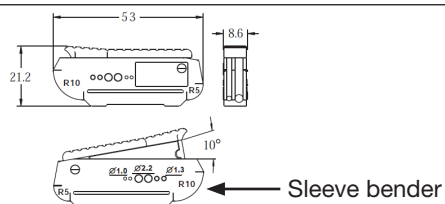
Through-Beam types						
Inner diameter	Max. detection distance (mm)*	Smallest detectable object	Min. bend radius	Dimensions (mm)**	Weight (g)	Ordering key
Ø0.25	20	Ø0.03	R10		25	FUTA4-20/A
Ø0.25	30	Ø0.03	R10		20	FUTA3-20 FUTA3-20/S10 FUTA3-20/S20 FUTA3-20/S40 FUTA3-20/S90
Ø0.25	20	Ø0.03	R10		24	FUTA3-20/A
Ø0.5	160	Ø0.05	R15		25	FUTS4-20 FUTS4-20/S10 FUTS4-20/S20 FUTS4-20/S40 FUTS4-20/S90
Ø0.5	130	Ø0.05	R15		30	FUTS4-20/A
Ø0.5	180	Ø0.05	R15		25	FUTS4-20/E
Ø0.5	160	Ø0.05	R15		25	FUTS3-20 FUTS3-20/S10 FUTS3-20/S20 FUTS3-20/S40 FUTS3-20/S90
Ø0.5	130	Ø0.05	R15		29	FUTS3-20/A
Ø0.5	180	Ø0.05	R15		25	FUTS3-20/E

*note 1 : Detection distance in the table is based on FA1 amplifier with setting; response time at 5000µS and threshold value at 27 (max setting)

**note 2 : Dimensional drawing shown here is for the standard version (without sleeve).

Accessories

FU-Cutter



- 1) Cutter is not included. Sold separately.
- 2) FU-Cutter can also be used as a fiber-unit sleeve bender.

Lenses

Part No	Description	Usage		Dimensions (mm)	Suitable to be used with
FUT-M4LENS	Through-beam M4 fiber lens	Attaching this lens to the transmitter fiber and to the receiver fiber will increase the scanning distance 4 times.			FUTO4-20 FUTO4-20/A FUTO4-20/E FUTD4-20 FUTD4-20A FUTD4-20/E FUTA4-20/A FUTA4-20 FUTS4-20 FUTS4-20/A FUTS4-20/E
FUT-M4SLENS	Through-beam M4 fiber side lens	The axial fiber unit can be changed to a radial type by attaching this unit to the light emitter or receiver of the fiber unit			FUTO4-20 FUTO4-20/A FUTO4-20/E FUTD4-20 FUTD4-20A FUTD4-20/E FUTA4-20/A FUTA4-20 FUTS4-20 FUTS4-20/A FUTS4-20/E
FUR-M3LENS-2	Reflective M3 fiber lens	The light signal will converge into a 0.5 mm dia. spot, provided the lens is attached to the fiber at a distance of 8 mm.			FURC3-20 FURC3-20/A FURA3-20 FURA3-20/A FURD3-20 FURD3-20/A FURD3-20/E
FUR-M3LENS-1	Reflective M3 fiber lens	The light signal will converge into a 2 mm dia. spot, provided the lens is attached to the fiber at a distance of 8 mm.			FURC3-20 FURC3-20/A FURA3-20 FURA3-20/A FURD3-20 FURD3-20/A FURD3-20/E
FUR-M4LENS	Reflective M4 fiber lens	The light signal will converge into a 0.7 mm dia. spot, provided the lens is attached to the fiber at a distance of 10 mm.			FURD4-20 FURD4-20/A FURD4-20/E FURA4-20/A FURA4-20

Mouser Electronics

Authorized Distributor

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[FUTA4-20/S20](#) [FUTA4-20/S40](#) [FUTO4-20/E](#) [FUTO4-20/S10](#) [FUTO4-20/S40](#) [FUT-SARR38-20](#) [FURC6-20/S20](#)
[FURD3-20/S90](#) [FUTA4-20/S10](#) [FUTD3-20/A](#) [FUT-M4LENS](#) [FUTO3-20/S40](#) [FUTS4-20/S20](#) [FUT-SBEAM30-20](#)
[FURC3-20](#) [FURC3-20/S10](#) [FURC6-20/S90](#) [FUTD4-20/A](#) [FUTO3-20/E](#) [FUTS3-20/S40](#) [FUTS4-20](#) [FURA3-20/A](#)
[FURA4-20/S40](#) [FURC3-20/S90](#) [FURC4-20/A](#) [FURC6-20](#) [FURO6-20/S10](#) [FUTD3-20/S10](#) [FUTO4-20](#) [FUTS3-20/E](#)
[FUTS4-20/E](#) [FUTS3-20](#) [FUT-SARR55-20](#) [FURA3-20/S10](#) [FURC4-20](#) [FURC6-20/S40](#) [FURC4-20/S20](#) [FURD4-](#)
[20/S10](#) [FURO6-20/S40](#) [FUTA4-20/S90](#) [FUT-FARR25-20](#) [FURD3-20/S10](#) [FURO6-20/S20](#) [FUTA4-20/A](#) [FUTD3-](#)
[20/S20](#) [FUTD4-20/E](#) [FUTO4-20/S90](#) [FUTS3-20/A](#) [FUTS4-20/A](#) [FUTS4-20/S10](#) [G21104401](#) [FUT-FORK1031-20](#)
[FUTO4-20/S20](#) [FURA3-20/S20](#) [FURA3-20/S40](#) [FURA3-20/S90](#) [FURC4-20/S10](#) [FURC4-20/S40](#) [FURD4-20](#) [FURD4-](#)
[20/A](#) [FURD4-20/E](#) [FURD4-20/S20](#) [FURO6-20/S90](#) [FURA4-20/S90](#) [FURC3-20/S20](#) [FURD3-20](#) [FUTD3-20/S40](#)
[FUTD4-20](#) [FUTO3-20/A](#) [FUTO3-20/S20](#) [FUTS3-20/S20](#) [FURA4-20](#) [FURC4-20/S90](#) [FUTD3-20](#) [FUT-FARR10-20](#)
[FUT-FORK0540-20](#) [FUTS4-20/S40](#) [FUTS4-20/S90](#) [FUT-SARR10-20](#) [FURC3-20/A](#) [FURD3-20/A](#) [FURD3-20/E](#)
[FURO6-20](#) [FUTA3-20/A](#) [FUTA3-20/S10](#) [FUTA3-20/S20](#) [FUTA3-20/S40](#) [FUTD3-20/S90](#) [FUTO3-20/S10](#) [FUTS3-](#)
[20/S90](#) [FURA3-20](#) [FURC3-20/S40](#) [FURC6-20/S10](#) [FURD3-20/S40](#) [FURD4-20/S40](#) [FURO6-20/E](#) [FUTD4-20/S20](#)
[FUTD4-20/S90](#) [FUT-M4SLENS](#) [FUT-SBEAM15-20](#)