

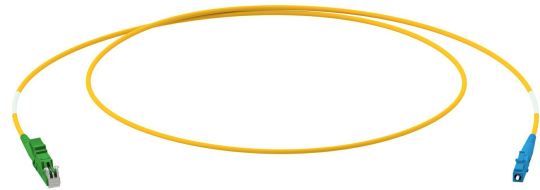
## PRODUCTPROFILE

### Catalogue number: 069A4014G657A1

Partnumber: 20102013

---

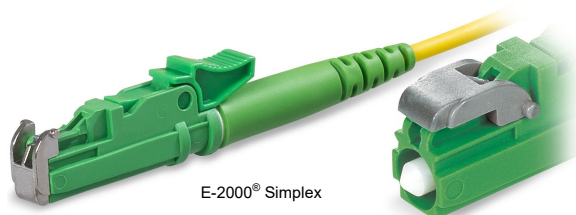
Fiber optic simplex patchcord  
Connector side A: E2000HRL Cat. 0.1dB Simplex  
SM RdM  
Connector side B: LC-Simplex  
9/125µm, 2.1mm, yellow  
Cable I-V(ZN)H1x2,1E9/125µm,G657A1



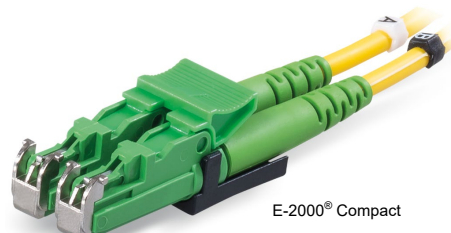
#### **Related documents:**

DS_E2000_HRL01DB_OE	0.1dB
DS_FASER G657A1_OE	Fiber Data Sheet
DS_I-VZNH1X21TB900A_L_OE	Cable Data Sheet
DS_LC_SIMPLEXDUPLEX_STECKER_OI	Steckerdatenblatt

## E-2000® HRL (APC 8°) connector category 0.1 dB



E-2000® Simplex



E-2000® Compact

E-2000® is a registered trademark of DIAMOND SA

### Properties and applications

- Our E-2000® HRL category 0.1 dB is a singlemode APC 8° fiber optic connector with solid-ceramic ferrule for all singlemode applications with particularly high requirements on optical transmission quality and protection of the connector ferrule, e.g. metropolitan (MAN) and long-haul (WAN) fiber optic networks and FTTx.
- Through its precision ferrule and its tuning with excentricity limit smaller than DINEN 61755-3-2 grade B specification, our E-2000® HRL category 0.1 dB reaches lowest insertion loss IL and highest return loss RL values at „each-to-each“ (random-mated) connections.
- With automatically closing metal shutter for protection against laser light and contamination of the connector ferrule, protection class IP40

### Standards

IEC 61754-15 (LSH), tuning with excentricity limit smaller than DINEN 61755-3-2 grade B specification

### Material

- Ferrule: Zirconia ceramic, Ø 2.50 mm
- Connector body: PBT, flammability UL94-V0
- Boot: TPR, flammability UL94-V0
- Protection shutter: Metal, not flammable

### Optical properties

- Insertion Loss IL acc. to IEC61300-3-4, Method B, against reference, maximum [dB]: 0.15
- Insertion Loss IL „random mated“ acc. to IEC61300-3-34, Method 2, [dB]: Mean 0.12 / Maximum 0.28
- Return Loss RL acc. to IEC61300-3-6, Method 1, against reference, minimum [dB]: 80

### Mechanical properties

- Mating cycles min. 1000, IL increase < 0.2 dB
- Strain relief max. 100 N, dependent on cable type

### Thermal properties

- Operation temperature range -40°C to +85°C, dependent on cable type
- Storage temperature range -40°C to +85°C

### Cable diameters

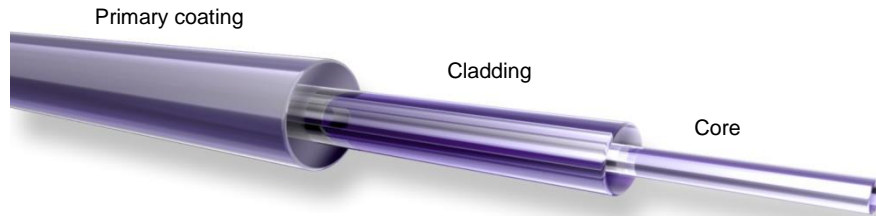
Round cable types Ø 0.9 to 3.0 mm

### Colors

- Connector body: Green
- Boot: Green
- Protection shutter: Silver

While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.

Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
H. Jungbäck	2022-11-21	M. Komarow	2022-11-21	008		---	---



**Standards**

Stepped index fiber 9/125µm according to  
 -ISO/IEC 11801 und EN 50173-1 OS2  
 -IEC 60793-2-50 type B1.3  
 -ITU G.657.A1 und G.652.D

**Structure**

Silica fiber with two layer acrylate primary coating

**Geometrical properties**

Modefield diameter @1310 nm	9.2 µm +/- 0.4 µm
Modefield diameter @1550 nm	10.4 µm +/- 0.5 µm
Cladding diameter	125 µm +/- 0.07 µm
Cladding non-circularity	≤ 0.7 %
Core-Cladding concentricity	≤ 0.5 µm
Primary coating diameter	242 µm +/- 5 µm
Coating-Cladding concentricity	< 12 µm

**Mechanical properties**

Break strength SCREEN-Test 1 % strain for 1 s @100 kpsi

**Thermal properties**

Operating temperature range -60 to +85°C

Dieses Dokument ist urheberrechtlich geschützt • This document is protected by copyright • Rosenberger OSI GmbH & Co. OHG

**Transmission characteristics**

**Attenuation:**

**Cabled fiber tight buffered:** @ 1310 nm max. 0.38 dB/km  
@ 1550 nm max. 0.28 dB/km

**Cabled fiber loose tube:** @ 1310 nm max. 0.36 dB/km  
@ 1550 nm max. 0.22 dB/km

**Uncabled fiber:** @ 1310 nm max. 0.32 dB/km  
@ 1383 nm max. 0.32 dB/km  
@ 1490 nm max. 0.21 dB/km  
@ 1550 nm max. 0.18 dB/km  
@ 1625 nm max. 0.20 dB/km

**Macrobending, induced attenuation, uncabled fiber:**

Radius 10 mm, 1 turn, @ 1550 nm ≤ 0.50 dB  
Radius 10 mm, 1 turn, @ 1625 nm ≤ 1.50 dB  
Radius 15 mm, 10 turns, @ 1550 nm . 0.05 dB  
Radius 15 mm, 10 turns, @ 1625 nm ≤ 0.30 dB  
Radius 25 mm, 100 turns, @ 1310, 1550 und 1625 nm ≤ 0.01 dB

**Dispersion:**

@ 1285 - 1330 nm ≤ 3.0 ps/(nm\*km)  
@ 1550 nm ≤ 18.0 ps/(nm\*km)  
@ 1625 nm ≤ 22.0 ps/(nm\*km)

**Polarization Mode Dispersion (PMD):**

PMD Link Design Value ≤ 0.04 ps/√km  
Maximum individual fiber PMD ≤ 0.1 ps/√km

**Cut-off-Wavelength:** ≤ 1260 nm

**Effective group index of refraction:**

@ 1310 nm 1.4676  
@ 1550 nm 1.4682

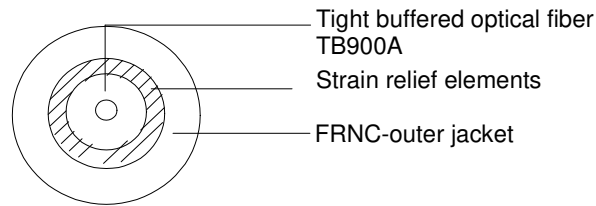
**Backscatter attenuation @ 1ns pulse width:**

@ 1310 nm -77 dB  
@ 1550 nm -82 dB  
@ 1625 nm -83 dB

While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.

Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
H. Jungbäck	12-04-15	P. Maier	12-04-15	001	without	H. Jungbäck	12-04-15

Fiber Optic Cable  
I-V(ZN)H 1x 2.1mm... TB900A



**Standards**

IEC 60794-2

**Structure**

**Cable core** TB900A = tight buffered optical fibre, acrylat upcoating, outer diameter 900 µm  
colour: yellow (E9/125), green (G50/125), blue (G62.5/125)  
Strain relief elements (aramid)

**Outer jacket:** Halogen-free and flame-retardant material, approx. 0.3 mm wall,  
Standard colours: Singlemode: yellow  
Multimode 50 µm: orange or green  
Multimode OM3: aqua (turquoise)  
Multimode 62,5 µm: orange  
Multimode OM4: violet

Other colours on request  
Outer diameter 2.1 mm  
Marking see separate drawing

**Mechanical properties**

<b>Min. bending radius</b>	static	30mm
	dynamic	60mm
<b>Min. bending radius with G657A</b>	static	15mm
	dynamic	30mm
<b>Max. pull force</b>		300 N
<b>Max. crush resistance long term</b>		100 N/dm
<b>Weight</b>		5.1 kg/km approx.

**Thermal properties**

<b>Transport and storage</b>	- 25°C to + 70°C
<b>Installation</b>	- 10°C to + 50°C
<b>In use</b>	- 20°C to + 70°C

**Chemical properties**

No resistance to oil, petrol, acid, leach and water

**Fire performance**

- Flame-retardant acc. to IEC 60332-1-2 and IEC 60332-3-22 Cat. A
- Smoke density acc. to IEC 61034
- Halogen-free acc. to IEC 60754-1
- Acidity of the combustion gases acc. to IEC 60754-2
- Fire Load 0.12 MJ/m

Dieses Dokument ist urheberrechtlich geschützt • This document is protected by copyright • Rosenberger OSI GmbH & Co. OHG

Fiber Optic Cable  
I-V(ZN)H 1x 2.1mm... TB900A

**Transmission characteristics**

See fiber data sheets

**Applications**

Indoor cable for the installation in cable ducts and in tubes and also suitable for interconnections  
For direct connector assembly

**Deliveryform**

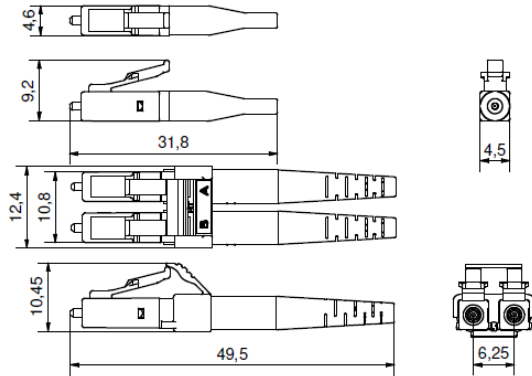
Disposable drums

Dieses Dokument ist urheberrechtlich geschützt • This document is protected by copyright • Rosenberger OSI GmbH & Co. OHG

While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.

Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
H. Jungbäck	02.09.2005	DE	13.07.2015	004	without	Y. Zhang	22.06.2017

LC-Simplex/Duplex connector



Properties and applications

- LC-Simplex/Duplex connectors for fiber optic cabling in broadband networks (telecom, MAN, WAN, CATV, GPON, FTTA, FTTx), building cabling (LAN, campus), data center, industry, laboratory and medical technology
- for cables with single core elements 600/900µm (e.g. buffered fiber for pigtails, breakout, mini breakout, figure "0" and figure "8" cables)
- A/B polarity of duplex connectors easily changeable without tools
- Translucence protection cap, fast and secure to handle and permeable for the light of laser pointers (visual fault locators)

Standards

LC-Simplex/Duplex connector according to IEC/DINEN 61754-20 and EIA/TIA 604-10

Material

- Ferrule: Zirconia ceramic, Ø 1.25 mm
- Body: PEI, flammability UL94-V0
- Boot: TPE, flammability UL94-V0
- Protection cap: POM, flammability UL94-HB

Optical properties

The quality feature of the connector at your product is identified by the part number:

- BASIC: Part numbers like XXXAXXXX
- PURE: Part numbers with "P" at their end, XXXAXXXXP

Details about PURE see Produktinfo\_Qualitätsmerkmal-PURE\_od

Insertion Loss IL acc. to IEC61300-3-4, Method B, against reference, maximum [dB]:

	Quality feature	BASIC	PURE
- Singlemode SM, 9/125µm		0,30	0,20
- Multimode low IL OM2, OM3, OM4, OM5, 50/125µm		0,15	0,15

Insertion Loss IL „random mated“ acc. to IEC61300-3-34, Method 2, [dB]:

Qualitätsmerkmal BASIC	Mittelwert	Maximum
- Singlemode SM, 9/125µm	0,13	0,50
- Multimode low IL OM2, OM3, OM4, OM5, 50/125µm	0,03	0,27

Insertion Loss IL quality feature PURE "random mated" application limit value, maximum [dB]:

- Singlemode SM, 9/125µm	97%	0,25
- Multimode low IL OM2, OM3, OM4, OM5, 50/125µm	100%	0,40

**GHMT PVP certificate**  
**No.: c5711X-XX**  
**No.: c5937X-XX**



Dieses Dokument ist urheberrechtlich geschützt • This document is protected by copyright • Rosenberger OSI GmbH & Co. OHG

LC-Simplex/Duplex connector

Optical properties

Return Loss RL acc. to IEC61300-3-6, Method 1, against reference, minimum [dB]:

	Quality feature	BASIC	PURE
- Singlemode SM, 9/125µm, PC 0°		45	45
- Singlemode SM, 9/125µm, UPC 0°		55	55
- Singlemode SM, 9/125µm, APC 8°		65	70
- Multimode all 50µ OM classes		35	40

Mechanical properties

- Mating cycles min. 1000, IL increase < 0.2 dB
- Strain relief max. 100 N, dependent on cable type

Thermal properties

- Operation temperature range -40°C to +85°C, dependent on cable type
- Storage temperature range -40°C to +85°C

Cable diameters

- Round cable types Ø 0,9 bis 3.0 mm
- Hotmelt Duplex Ø 4,8 ~ 7.0mm

Colors

Connector body / boot:

- Singlemode SM, 9/125µm, PC and UPC 0° blue / blue
- Singlemode SM, 9/125µm, APC 8° green / green
- Multimode OM2, OM3, OM4, OM5, 50/125µm black / black

Polarity change

Step 1: Remove duplex clip

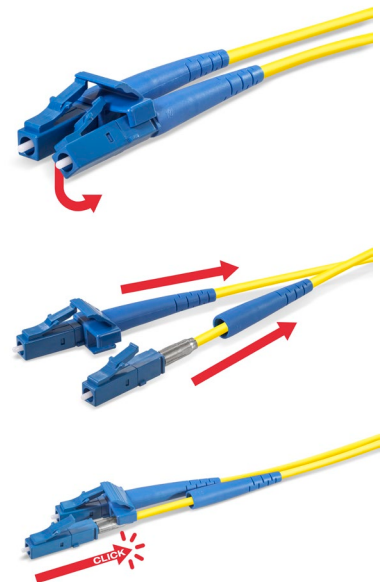
- When changing polarity, the release levers should be facing up as shown in the picture.
- Remove one of two simplex connectors from the duplex clip by pressing down and out, supported by a slight tilt movement.
- Then release the second simplex connector from the duplex clip in a similar manner.

Step 2: Reattach duplex clip

- Push back the boot of both simplex connectors
- Reattach the duplex clip over the simplex connectors that have been changed in position and insert the simplex connectors (a click is noticeable).

Step 3: Final assembly duplex connector

- Slide the boot of both simplex connectors to their original position.



Dieses Dokument ist urheberrechtlich geschützt • This document is protected by copyright • Rosenberger OSI GmbH & Co. OHG

Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
S. Wiener	16.03.2021	H. Jungbäck	2021-03-16	003		H. Jungbäck	2022-10-07

While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.