



**revos** E-2000  
Industrial multipole connectors with  
fiber optic technology





**Multiple application possibilities from *revos* E-2000:**

- Mining industry
- Wind turbines
- Mechanical engineering
- Construction machinery
- Transportation
- Safety systems

**revos** E-2000

## High-performance fiber optic technology in robust housings

### New areas demand new technology

Today, heavy duty connectors are ever more frequently used in outdoor areas too.

Whether in wind turbines, construction machinery, the mining industry, transportation or mechanical engineering - data communication in outdoor areas places increasingly greater demands on the data transmission systems employed. Operation of modern machinery requires constantly rising bit rates, long transmission paths and protection from overvoltage in the network.

These high demands are perfectly covered by the newly conceived **revos** heavy duty connectors with integrated fiber optic technology.

Thanks to the proven, robust housing technology, all **revos** connectors are distinguished by high resistance against shocks as well as against high thermal and mechanical stress. The **revos** E-2000 connectors with their modern fiber optic technology effortlessly master fast and extremely interference-free data transmission over long paths.

### Practical application examples

Through application of the **revos** E-2000 in modern, automatically operating container terminals, it is possible to securely and stably transmit the entire bandwidth of the requisite amount of data at all times.

Even in areas with higher electromagnetic loads, such as in wind turbines, **revos** E-2000 heavy duty connectors are preferred for application because their extremely interference-free data transmission ensures smooth communication of command and signaling devices, as well as automation units.

In the modern mining industry and in the mines themselves, today a lively information exchange with growing amounts of data is taking place. Through the use of **revos** E-2000 to connect the control technology below ground, the growth of possibilities for data transmission is nearly unlimited. One valued additional benefit of the fiber optic technology is that it does not react to electromagnetic interference fields, thus contributing to safety in EX-protected areas below ground.

#### Features of **revos** E-2000:

- Transmission over great distances
- High transfer rates immune to electromagnetism
- Sparkless, therefore predestined for EX-protected areas
- Potential-free; no problems with EMC
- No crosstalk with adjacent fibers
- Thin, light cables

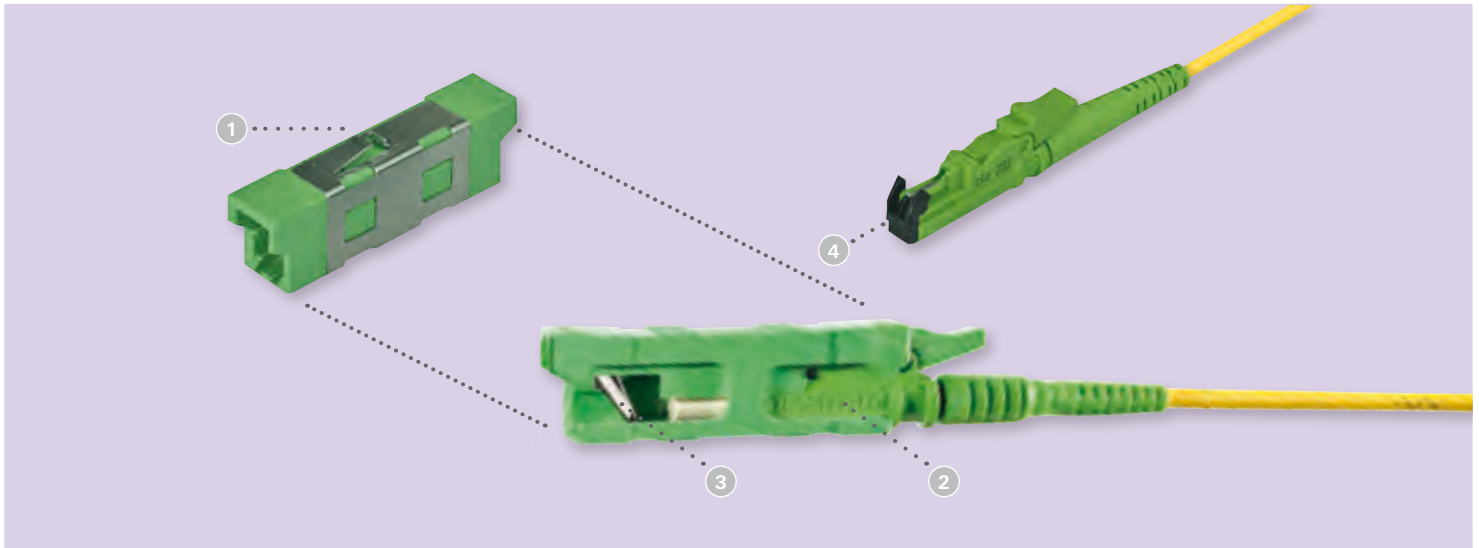


Wieland Electric GmbH was awarded the TOP 100 innovation prize of German medium-sized companies for the sixth time.

## Construction of the **revos** E-2000 connector



## revos E-2000 connection



### Benefits of *revos* E-2000:

#### 1) Plastic injection-cast housing – long guide rails in connection housing

➔ Robust construction; easy and non-twisting insertion

#### 2) Long guide rails in *revos* E-2000 housing

➔ Stable optical values under mechanical stress

#### 3) Integrated, automatic aperture

➔ Closes automatically when pulled out, protects against laser light emission

#### 4) Integrated protection cap

➔ Closes automatically when pulled out, protects against dust, safe to eyes

### Features of *revos* E-2000:

- Insertion loss typ. 0.1 dB with single mode fibers
- 100 % control; measurement values provided
- Body-guided connector with protective flap
- Repeatability (up to 1000 mating cycles)
- Protection class IP65
- Assemble in field
- On-site repair possible
- Self-aligning housing supports blind connection
- Manufactured in Central Europe

## Product overview and cabling solutions



**revos E-2000 connector**

- Low insertion loss, typ. 0.1 dB, single mode
- Suitable for all **revos** data cable feed-throughs



**FOC Duplex cable E-2000®**

- Low insertion loss, typ. 0.1 dB, single mode



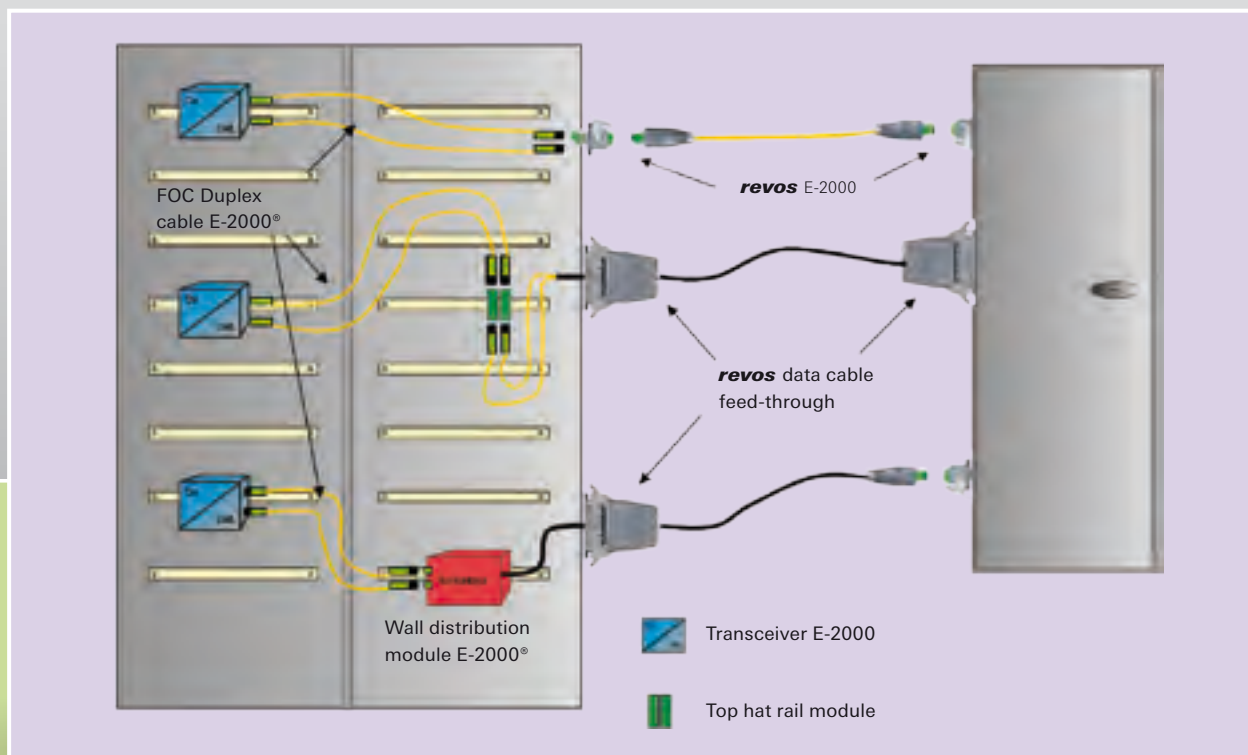
**Top hat rail module**

- Suitable for EN 50022, Duplex mating adapter E-2000



**Wall distribution module E-2000®**

- Integrated splice tray, up to 12 E-2000 ports
- Suitable for EN 50022
- Low insertion loss, typ. 0.1 dB, single mode



## The field assembly with fusion technology

### Basics

The E-2000™ FUSION technology enables easy and fast field assembly while maintaining the high quality standards of the **revos** E-2000 connector.

The connection component for this is the advanced „Krokodil Alberino“ 2.5 mm ferrule for field assembly. The ferrule assembly consists of a mini-pigtail with integrated splice protection elements. The fiber endfaces are core-centered via the active core alignment process and polished to precise factory specifications. The E-2000™ FUSION is assembled in the field with a fusion splice, using the DIAMOND ZEUS D50 HE. The high quality of the tools and the ferrules guarantees low insertion loss.



### **revos** E-2000 with assembly set

The fusion splice assembly set ZEUS D50 HE enables on-site assembly and on-site repair of fiber optic cable connections through the use of fusion splice technology. Thus, for example, the entire cable no longer has to be sent off for repair if there is a failure; instead, it is repaired on-site with the fusion splice assembly kit ZEUS D50 HE. If need be, even underground.



#### The benefits at a glance:

- Field assembly possible
- Assemblies and repairs carried out directly on site
- Minimizes down times
- Typical insertion loss 0.25 dB
- User-friendly All-in-One system for stripping insulation, breaking fibers and splicing
- Improved cable handling for 3–8 mm outdoor cable thanks to special holders which ensure low splice loss
- Set with complete tool set for all work from cable preparation up to plug body assembly



## FOC components single-mode PC/APC

### General

The **revos** E-2000 connection system enables wire-optic signal transmission with the exceptional properties of the E-2000® connector. These connectors are integrated within a compact, robust, shock- and vibration-resistant metal housing and are ideally suited for data transmission in rough environments. This ensures high bit rate data transmission over long paths in industrial applications. The compatibility with the fusion process for on-site assembly guarantees maximum flexibility both during initial installation and when service is required. The **revos** E-2000 is equipped with single-mode fibers and so is the ideal solution for communication systems in field operation.

### Available versions:

- Assembled "ready to use"
- Assemble in field as fusion splice

### FOC properties + benefits:

- Robust design with IP65 protection to IEC 60529
- Dust-tight; splash- and spray-water protection
- Laser protection through non-detachable, self-closing metal protective flap
- Available with core-centered E-2000® connectors with minimal insertion loss, thus guaranteeing a reliable optical connection
- Easy handling and self-aligning housing supports "blind connection"
- High reliability in rough environments

### Specifications

|                              | Single mode<br>8° APC | Unit | Test conditions                         |
|------------------------------|-----------------------|------|---|
| Insertion loss (IL) standard | typ. 0.1 max. 0.25    | dB   | IEC 61300-3-4; $\lambda = 1300/1550$ nm |
| Insertion loss (IL) fusion   | typ. 0.25 max. 0.5    | dB   | IEC 61300-3-4; $\lambda = 1300/1550$ nm |
| Return loss (RL)             | min. 75*              | dB   | IEC 61300-3-6; $\lambda = 1300/1550$ nm |
| Repeatability                | max. $\pm 0.1$        | dB   |   |
| Life cycle                   | 500 mating cycles     | -    |   |
| Operating temperature        | - 40 / + 85 **        | °C   |   |

\* Measured with precision reflectometer

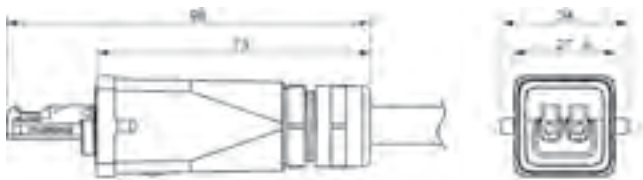
\*\* The temperature range of the cables used may restrict the connector specifications



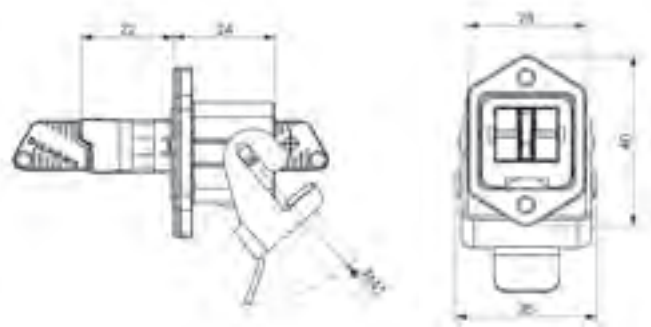


# Dimensions

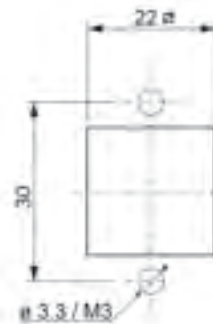
**revos** MINI connector



**revos** MINI adapter housing



**Drilling template, revos** MINI adapter housing



# FOC Duplex compact plug

## General

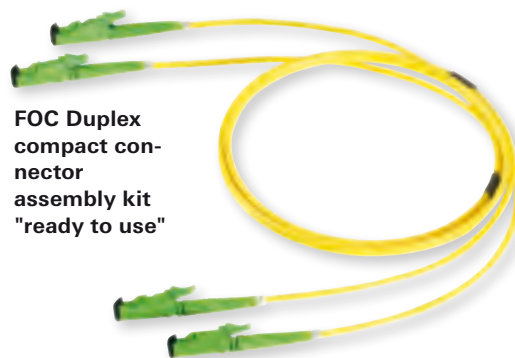
The E-2000 Duplex compact plug combines the widely used RJ 45 construction with the familiar benefits of the E-2000 FOC connector system. This basic components of this product are two individual connectors which are connected by a locking bridge and a mutual thumb-latch. The mating pieces designed for this purpose are engaged to the distributor and connection boxes by means of different mounting clips and are flush with their front surfaces.

### The FOC is distinguished by the following features:

- Connector with integrated metal protective flap
- Smallest installation cross section for Duplex fiber optic connections, compatible with RJ 45 dimensions
- Opening for E-2000™ LED coupling

## Norm standards:

- IEC 61754-15 "Fiber optic connector interfaces – Type LSH connector family"



FOC Duplex compact connector assembly kit "ready to use"

## Specifications

|                       | Single mode 8° APC | Single mode 8° 0.1 dB | Unit | Test conditions                         |
|-----------------------|--------------------|-----------------------|------|---|
| Insertion loss (IL)   | typ. 0.2 max. 0.4  | max. 0.1              | dB   | IEC 61300-3-4; $\lambda = 1300/1550$ nm |
| Return loss (RL)      | min. 70*           | min. 85*              | dB   | IEC 61300-3-6; $\lambda = 1300/1550$ nm |
| Repeatability IL      | max. + 0.1         | -                     | dB   | Throughout the entire life cycle        |
| Life cycle            | 1000 mating cycles |                       | -    |   |
| Operating temperature | - 40 / + 85 **     |                       | °C   |   |
| Storage temperature   | - 40 / + 90 **     |                       | °C   |   |

\* Measured with precision reflectometer

\*\* The temperature range of the cables used may restrict the connector specifications.

# Top hat rail module E-2000®

## General

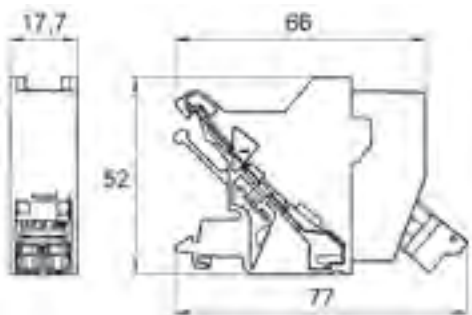
The top hat rail module E-2000® Compact is intended for practical application in FOC channel connections in industrial areas. For this purpose, an E-2000® mating piece with a mating direction of 45° for easier handling is used. The top hat rail module E-2000® is constructed for easy mounting in all housing technologies with top hat rail TH35 according to DIN EN 60715.

## Features:

- Mating piece E-2000® Compact for mounting on top hat rail TH35
- Module width 1 TE (modular spacing)
- Viewing window for labeling insert
- Mating direction angled 45°

## Technical specifications:

- Material: Plastic, metal, zirconia guide sleeve
- Color: External housing light gray RAL 7035, E-2000® mating piece (green)
- Weight: 27 g
- Dimensions: 17.7 x 52 x 77 mm (W x H x D)



## Wall distribution module E-2000®

### General

The wall distribution module is a stable, compact housing of anodized aluminum for top hat rail mounting according to DIN standards (35 mm). The wall distribution module accepts up to 12 fibers and, with separate trays for fibers and pigtails including excess lengths, presents a clean solution.

### Technical specifications:

- Material:  
Housing from anodized aluminum
- Housing dimensions\*:  
45 x 113 x 135 mm (W x H x D)

\*Dimensions without optical components, top hat rail clip and screw connections



### Features:

- Protected pigtail and splice reserve tray
- Maintains minimal bending radius
- 100 % testing of the inserted pig-tails, including measurement log
- Wall distribution module for mounting in 35 mm top hat rails as per DIN
- Accepts up to 12 fibers per module
- Fiber insertion from various directions possible
- Robust metal housing of anodized aluminum

## flexMILE® switch

### General

The flexMILE® gigabit switch is an unmanaged 7-port switch for 10/100/1000 Mbit/s with 5xTX and 2xFX ports. The optical ports function with single-mode FOC. Additional features include auto-negotiation, MDX/MDIX, redundant power supply and extended temperature range. LEDs signal fault states.

### Technical data:

- FOC connection E-2000
- Fiber type: Single mode 9/125 µm
- FOC range: 10 km; up to 100 km on request  
0.3 dB/km
- Wavelength: 1310 nm
- Status LEDs: TX data per port
- Operating voltage: 12-65 V DC
- Operating temperature: -40 °C...+55 °C
- Storage temperature: -40 °C...+85 °C
- EMC: EN610000-6-2 / EN55022 +A1 and A2
- Weight: 850 g
- Dimensions:  
145 mm x 70 mm x 130 mm (W x H x D)
- Housing: Stainless steel, powder coated



### Features:

- E-2000 low-profile intake
- Top hat rail fastening



# revos E-2000 FOC components

**revos MINI connector + protection cover**



**revos MINI adapter housing + protection cover**



**FOC Duplex compact plug, assembled**



**Wall distribution module E-2000®**



**Top hat rail module E-2000®**



**Switch**



| Description   | Type                        | Art.No.                    | Std. Pack |
|---|-----------------------------|----------------------------|-----------|
| <b>revos</b> E-2000 single mode APC 0.1 dB                  |                             |                            |           |
| 2 x <b>revos</b> MINI connector + protection cover, assm.*1 | E-2000 R2E1 R2E1 A01 LXXX*3 | 99.7xx.9999.9 <sup>3</sup> | 1         |
| 1 x <b>revos</b> MINI connector + protection cover, assm.*2 | E-2000 R2E1 0000 A01 LXXX*3 | 99.7xx.9999.9 <sup>3</sup> | 1         |
| <b>revos</b> MINI adapter housing + protection cover        | E-2000 R2E 046 001V202      | 99.703.9999.9              | 1         |
| 2 x FOC Duplex compact plug assm. with 1 m cable            | E-2000 502 502 925T001      | 99.710.9999.9              | 1         |
| 2 x FOC Duplex compact plug assm. with 2 m cable            | E-2000 502 502 925T002      | 99.711.9999.9              | 1         |
| 2 x FOC Duplex compact plug assm. with 3 m cable            | E-2000 502 502 925T003      | 99.712.9999.9              | 1         |
| 2 x FOC Duplex compact plug assm. with 5 m cable            | E-2000 502 502 925T005      | 99.713.9999.9              | 1         |
| Wall distribution module E-2000                             | E-2000 G8V1 06R 12FV002     | 99.700.9999.9              | 1         |
| Top hat rail module E-2000                                  | E-2000 G8H 042 001V202      | 99.701.9999.9              | 1         |
| Switch (upon request)                                       | E-2000                      | 99.702.9999.9              | 1         |

**Technical data**

|                                    |  |
|------------------------------------|--|
| <b>revos</b> E-2000 connector      |  |
| Insertion loss (IL)                | typ. 0.1 dB / IEC 61300-3-4; $\lambda = 1300 / 1550$ nm        |
| Return loss (RL)                   | min. 85 dB / IEC 61300-3-4; $\lambda = 1300 / 1550$ nm         |
| Mating cycles                      | 500  |
| Operating temperature              | -20 °C ... +70 °C  |
| Protection type                    | IP 65  |
| <b>Wall distributor E-2000®</b>    |  |
| Material                           | Housing from anodized aluminum                                 |
| Housing dimensions                 | 45 x 113 x 135 mm (W x H x D)                                  |
| Mounting                           | Top hat rail TH35 to DIN EN 60715 (W = 35 mm, H = from 7.5 mm) |
| Input                              | 6 x E-2000 Duplex compact plug                                 |
| <b>Top hat rail module E-2000®</b> |  |
| Material                           | Plastic  |
| Module width                       | 1 TE (modular spacing) (< 18 mm, DIN 43880)                    |
| Color                              | Light gray RAL 7035  |
| Mounting                           | Top hat rail TH35 to DIN EN 60715 (W = 35 mm, H = from 7.5 mm) |
| Input                              | 1 x E-2000 Duplex compact plug                                 |
| <b>Switch</b>                      |  |
| Housing                            | Stainless steel, powder coated                                 |
| Housing dimensions                 | 70 x 145 x 130 mm (W x H x D)                                  |
| Weight                             | 850 g  |
| Mounting                           | Top hat rail TH35 to DIN EN 60715 (W = 35 mm, H = from 7.5 mm) |
| Inputs                             | 7 ports for 10/100/1000 Mbit/s with 5xTX and 2xFX              |
| FOC plug                           | E-2000   |
| Fiber types                        | Single mode 9/125 $\mu$ m                                      |
| Range                              | 10 km / 0.3 dB/km  |
| Wave length                        | 1310 nm  |
| Power supply                       | 12-65 V DC / 8 W   |
| EMC                                | DIN EN 610000-6-2 / DIN EN 55022 +A1 and A2 Class A            |
| Operating temperature              | -40 °C ... +55 °C  |

\*1 The flexible solid core cable, suitable for industrial and military applications, single mode 9  $\mu$ m; jacket color black, provided on both sides with the **revos** MINI connector

\*2 The flexible solid core cable, suitable for industrial and military applications, single mode 9  $\mu$ m; jacket color black, provided on one side with the **revos** MINI connector; other side blunt end

\*3 xx = dependent on cable length; upon request

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