

# SHS-2K4G-M/F

## FOUR-CHANNEL FIBER OPTIC CONNECTOR

|              |                                 |         |            |
|--------------|---------------------------------|---------|------------|
| Document No. | SHS-DS-4FO-001                  | Version | V8 REVIEW  |
| Company      | Suzhou SHS Technology Co., Ltd. | Date    | 2026-07-29 |

|                                                                                     |                   |                                              |                                  |                                         |
|-------------------------------------------------------------------------------------|-------------------|----------------------------------------------|----------------------------------|-----------------------------------------|
|   |                   | SHS-2K4G-M<br>PLUG • PROTECTIVE<br>CAP       |                                  |                                         |
|  |                   | SHS-2K4G-F<br>RECEPTACLE • PROTECTIVE<br>CAP |                                  |                                         |
| 4<br>OPTICAL<br>CHANNELS                                                            | PLUG / RECEPTACLE | 98.1 mm<br>PLUG LENGTH                       | 100.8 mm<br>RECEPTACLE<br>LENGTH | 15 / 24.86 mm<br>ILLUSTRATED<br>PROFILE |

### PRODUCT HIGHLIGHTS

|                                                                        |                                                                                     |
|------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 01 4-CHANNEL FIBER INTERFACE<br>Clear channel numbering from 1 to 4.   | 02 EXPANDED-BEAM PATH<br>Non-contact expanded beam reduces direct end-face contact. |
| 03 PUSH-PULL LOCKING<br>Keyed circular design with rear strain relief. | 04 CUSTOM ASSEMBLIES<br>SHS custom fiber assemblies and interconnect solutions.     |

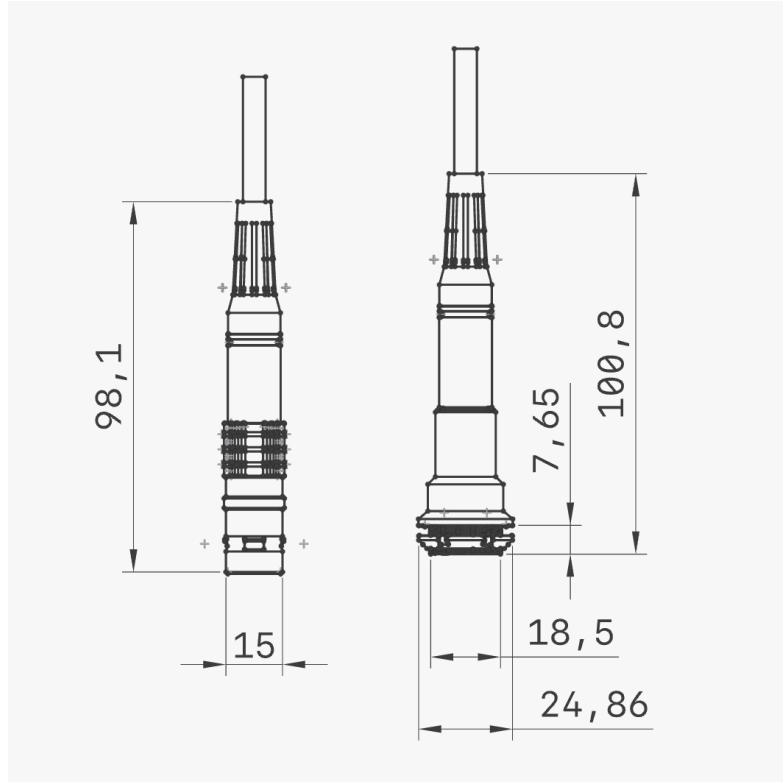
## TECHNICAL DATA

Items requiring confirmation shall be governed by SHS controlled drawings, material specifications, and validation reports.

| OPTICAL CONFIGURATION             |                                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------|
| Model                             | SHS-4FO                                                                                               |
| Product type                      | Four-channel fiber-optic connector                                                                    |
| Optical channels                  | 4                                                                                                     |
| Fiber type                        | Multimode OM1 / OM2 / OM3                                                                             |
| Operating wavelength              | 850 nm                                                                                                |
| Insertion loss                    | ≤0.75 dB                                                                                              |
| Return loss                       | ≥35.0 dB                                                                                              |
| End-face type                     | Non-contact expanded-beam lens                                                                        |
| MECHANICAL                        |                                                                                                       |
| Mating type                       | Plug and receptacle                                                                                   |
| Interface numbering               | Channels 1-4; positions 2 and 4 are mirrored between plug and receptacle                              |
| Illustrated plug dimensions       | L 98.1 mm; overall width 15 mm; latest drawing governs                                                |
| Illustrated receptacle dimensions | L 100.8 mm; body 18.5 mm; max. profile 24.86 mm; mounting section 7.65 mm                             |
| Locking system                    | Push-pull self-locking                                                                                |
| Mating endurance                  | ≥10,000 mating cycles                                                                                 |
| MATERIALS & ENVIRONMENT           |                                                                                                       |
| Shell material                    | Brass shell, collet nut, locking sleeve, and brass intermediates                                      |
| Surface finish                    | Chrome-plated shell/related parts (SAE AMS2460); nickel-plated brass intermediates (SAE AMS-QQ-N-290) |
| Insulator material                | PPS                                                                                                   |
| IP rating                         | IP67; applicable condition and test setup per validation report                                       |
| Operating temperature             | -40°C to +150°C; maximum temperature for short-term use only                                          |
| Vibration & shock                 | Vibration 15 g (10 Hz-2,000 Hz); shock 100 g (6 ms); test details per validation specification        |
| CABLE & TERMINATION               |                                                                                                       |
| Cable outside diameter            | 6-10 mm                                                                                               |
| Fiber termination                 | Adhesive-bonded fiber coupled to a collimating lens                                                   |
| Cable termination protection      | Illustrated strain-relief structure                                                                   |

## INTERFACE & DIMENSIONS

### PLUG & RECEPTACLE DIMENSIONS



#### PLUG

L 98.1 mm • OVERALL WIDTH 15 mm

#### RECEPTACLE

L 100.8 mm • BODY 18.5 mm • MAX. PROFILE 24.86 mm

### MATING-FACE NUMBERING



SHS-4光插合面视图 / SHS-4 MATING-FACE VIEW

|    |                                                                                 |
|----|---------------------------------------------------------------------------------|
| 01 | Units: mm; controlled drawing governs.                                          |
| 02 | Front mating-face views; position 2 aligns; drawings are mirrored.              |
| 03 | 7.65 datum/tolerance, panel cutout, and mounting thread per controlled drawing. |

## EXPANDED-BEAM DESIGN

Expanded beam reduces the impact of localized contamination and end-face wear |  
Collimating lens | Non-contact gap

### EXPANDED-BEAM ADVANTAGES

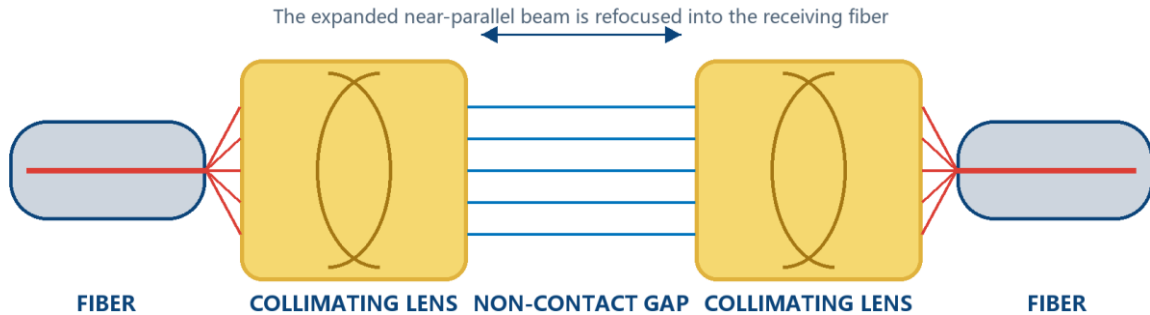
|                                                                                                                                                                                                                       |                                                                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>01 CONTAMINATION RESISTANCE</b><br>After expansion by the collimating lens, the beam spot area approaches 100 times its original area, reducing the relative effect of localized dust on transmission performance. | <b>02 NON-CONTACT TRANSMISSION</b><br>The optical end faces do not contact after mating, reducing wear caused by vibration and repeated mating.                                                                  |
| <b>03 EASY MAINTENANCE</b><br>The collimating lens protects the fiber end face. Contamination can be cleaned from the lens surface, simplifying maintenance compared with traditional ferrule end faces.              | <b>04 HIGH-CYCLE MATING</b><br>Source data specifies a push-pull self-locking structure and a mating-life target above 5,000 cycles. The official SHS-4FO endurance rating remains subject to sample validation. |

### FOUR-CHANNEL CONCEPT

|            |                                                                                                          |
|------------|----------------------------------------------------------------------------------------------------------|
| Interface  | Four expanded-beam optical channels; mirrored channel numbering is used between the plug and receptacle. |
| Mechanical | Keyed circular interface, push-pull self-locking, rear strain relief, and protective-cap design.         |

## EXPANDED-BEAM LENS PRINCIPLE & ADVANTAGES

A collimating lens expands the light emitted by the fiber into a near-parallel beam. After crossing the non-contact gap, the opposing lens refocuses the light into the receiving fiber.



### FOUR ADVANTAGES OF THE COLLIMATING LENS

#### 01 NEAR-100x BEAM AREA

Lens expansion increases the beam area to nearly 100 times the original area, so the same contaminant blocks a much smaller proportion of the transmitted light.

#### 02 NON-CONTACT, LOW WEAR

Fiber end faces do not touch after mating, reducing wear caused by vibration and repeated mating while protecting the precision fiber interface.

#### 03 GAP TOLERANCE & RELIABILITY

In principle, optical signal transmission can be maintained at an approximately 5 mm lens-face gap; actual gap and loss remain subject to 12-channel sample validation.

#### 04 SIMPLE CLEANING

Contamination is exposed on the outer lens surface and can be removed by gentle wiping without directly handling the fiber end face.

A larger beam spot reduces the blocked-area ratio for the same contaminant (schematic, not to scale)

