



DENKI SEIGYO

DSF-A05 / DSF-A06 SERIES



High Speed Fiber Optic Sensor Amplifier

1. PRODUCT OVERVIEW

The Denki Seigyo DSF-A Series Fiber Optic Amplifiers are compact, high-performance digital amplifiers designed for precise detection in industrial automation applications.

With a **dual digital display**, **high-speed response**, and **multiple operation modes**, the DSF series ensures reliable performance even in demanding environments such as high-speed production lines and precision detection systems.

- ✓ Designed for **high-speed fiber optic sensing applications**
 - ✓ Ideal for **small object detection and high accuracy positioning**
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2. KEY FEATURES

- Flexible switching between **multiple operation modes**
 - **High-speed response up to 0.25 ms**
 - **Dual digital display (Red/Green)**
 - **Digital fine sensitivity adjustment**
 - **Light ON / Dark ON selectable**
 - Complete protection:
 - Reverse polarity protection
 - Over-voltage protection
 - Over-current protection
 - Compatible with **high-speed fiber units**
 - Easy setup using **SET / TEACH function**
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3. MODEL SPECIFICATION

Model	Output	Display	Response Time	Adjustment	Operation Mode
DSF-A05	PNP	Dual Digital	0.25 ms	Digital Fine	Light ON / Dark ON
DSF-A06	NPN	Dual Digital	0.25 ms	Digital Fine	Light ON / Dark ON

4. OPERATING MODES

The DSF series supports multiple sensing modes for different applications:

Mode	Response Time	Application
HIGH SPEED	0.25 ms	Fast detection / counting
FINE	Stable detection	Small objects
SUPER	Medium filtering	General automation
MEGA	High noise immunity	Harsh environments

5. TECHNICAL SPECIFICATIONS

General Specifications

Parameter	Specification
Type	Fiber Optic Amplifier
Display	Dual Digital (Red/Green)
Output Mode	PNP (A05), NPN (A06)
Operation Mode	Light ON / Dark ON
Response Time	0.25 ms
Mounting	DIN rail

Electrical Specifications

Parameter	Specification
Supply Voltage	12 – 24V DC $\pm 10\%$
Output Current	Max. 100 mA
Residual Voltage	≤ 1.5 V
Power Consumption	Low power design
Protection	Reverse polarity / Overcurrent / Overvoltage



Optical Specifications

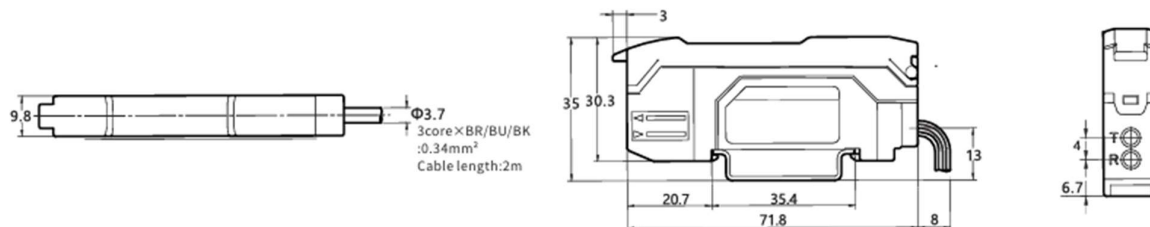
Parameter	Specification
Light Source	Red LED (~650 nm)
Compatible Fiber	Plastic / Glass fiber
Detection Type	Through-beam / Diffuse
Sensitivity Adjustment	Digital fine adjustment

Environmental Specifications

Parameter	Specification
Ambient Light	Max. 20,000 lux (incandescent) / 30,000 lux (daylight)
Operating Temperature	-20°C to +55°C
Humidity	35–85% RH
Vibration	10–55 Hz, 1.5 mm amplitude
Shock Resistance	500 m/s ²
Protection Degree	IP40

Mechanical Specifications

Parameter	Specification
Material	Polycarbonate
Size	Approx. 30 × 10 × 72 mm
Weight	Approx. 65 g



All dimensions are in mm.



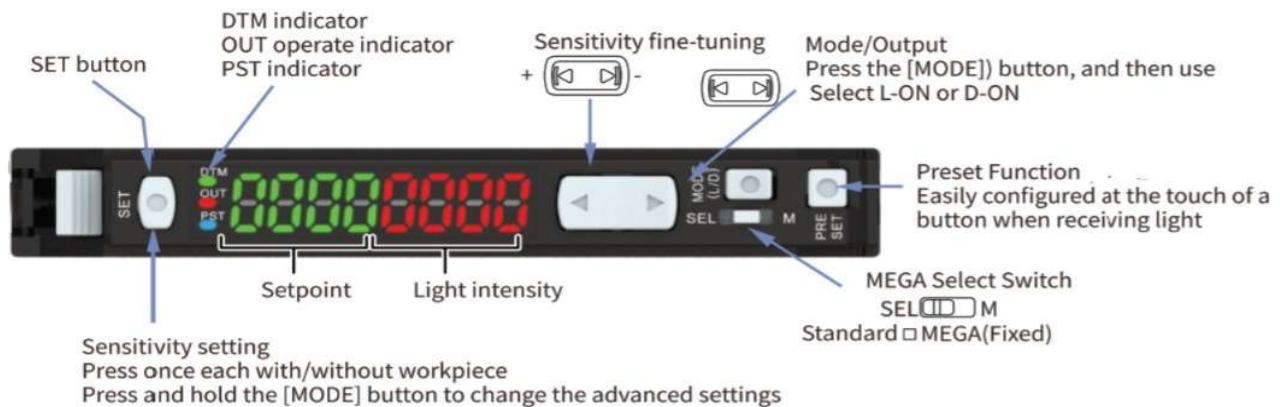
6. USER INTERFACE

Dual Digital Display

- **Red Display** → Light intensity
- **Green Display** → Setpoint

Controls

- SET / TEACH button
- ▲ / ▼ sensitivity adjustment
- MODE selection button



7. FUNCTIONAL FEATURES

Digital Fine Adjustment

- Precise threshold control
- Suitable for transparent / small object detection

Light ON / Dark ON

- Configurable output logic

High-Speed Detection

- Ideal for:
 - Counting applications
 - High-speed conveyors
 - Packaging lines



8. INPUT / OUTPUT CIRCUIT

PNP Output (DSF-A05)

- Brown → +V
- Blue → 0V
- Black → Output

NPN Output (DSF-A06)

- Brown → +V
- Blue → 0V
- Black → Output

9. APPLICATIONS

- Fiber optic detection systems
- High-speed packaging machines
- Small component detection
- Electronics assembly (PCB)
- Conveyor systems
- Robotics automation

10. ORDERING INFORMATION

Model	Output	Display	Response
DSF-A05	PNP	Dual Digital	0.25 ms
DSF-A06	NPN	Dual Digital	0.25 ms