

SIGNAL FIRE AI-9, AI-12 & AI-30 — Technical Comparison

1. Technical Specification

Technical Specification	Signal Fire AI-9	Signal Fire AI-12	Signal Fire AI-30
Trunk Line Distance	80 km	100 km	100 km
Core Alignment Accuracy	0.1 μm	0.05 μm	0.05 μm
Number of Motors	6	6	6
Alignment Technology	Core Alignment	Core Alignment	Core Alignment
Splicing Time	5 s	6 s	6 s
Heating Time	15 s, can be customized	15 s, can be customized	15 s, can be customized
Automatic Splicing Mode	Yes	Yes	Yes
Semi-Automatic Splicing Mode	Yes	Yes	Yes
Automatic Focusing and Core Alignment	Yes	Yes	Yes
Typical Splice Loss — SM	0.02 dB	0.02 dB	0.02 dB
Typical Splice Loss — MM	0.01 dB	0.01 dB	0.01 dB
Typical Splice Loss — DS/NZDS	0.04 dB	0.04 dB	0.04 dB
Return Loss	>60 dB	>60 dB	>60 dB
Tensile Test	2 N	2 N	2 N
Supported Fiber Types	G.651, G.652, G.653, G.654, G.655, G.657	G.651, G.652, G.653, G.654, G.655, G.657	G.651, G.652, G.653, G.654, G.655, G.657
Automatic Fiber Type Identification	Yes	Yes	Yes
Cladding Diameter	80–150 μm	80–150 μm	80–150 μm
Coating Diameter	100–1.000 μm	100–1.000 μm	100–1.000 μm
Cleaving Length — Coating up to 250 μm	8–16 mm	8–16 mm	8–16 mm
Cleaving Length — Coating 250–1,000 μm	16 mm	16 mm	16 mm
Display	5-inch color touchscreen	5-inch color touchscreen	5-inch TFT color

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Single-View Magnification	320×	320×	320×
Dual-View Magnification	200×	200×	200×
Battery capacity	7800mAh, Continuously welds and heats about 260 cores	7800mAh, Continuously welds and heats about 260 cores	7800mAh, Continuously welds and heats about 240 cores
Built-in One-step Electric Cleaver	No	No	Yes
Electric Cleaver Type	—	—	High-precision, one-step
Optical Power Meter (OPM)	Yes, 15 mW	Yes, 15 mW	Yes, 15 mW
OPM Measurement Range	−50 to +26 dBm	−50 to +26 dBm	−50 to +30 dBm
Bluetooth / App Connectivity	Yes	Yes	Yes
Weight with Battery	2.08 kg	2.10 kg	3.09 kg

2. Key Differences

Feature	Signal Fire AI-9	Signal Fire AI-12	Signal Fire AI-30
Main Advantage	Faster splicing	Higher alignment accuracy	Higher alignment accuracy, Built-in electric cleaver and wider OPM range
Core Alignment Accuracy	0.1 μm	0.05 μm	0.05 μm
Splicing Time	5 s	6 s	6 s
Built-in One-step Electric Cleaver	No	No	Yes
OPM Measurement Range	−50 to +26 dBm	−50 to +26 dBm	−50 to +30 dBm
Best Suited For	Fast, everyday fiber-optic installation and maintenance	Professional fiber-optic installation requiring higher alignment accuracy	Professional fieldwork requiring an integrated electric cleaver and extended optical power measurement range

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3. Summary

- **Signal Fire AI-9** — Offers the shortest splicing time at **5 seconds**, with a stated core alignment accuracy of 0.1 µm.
- **Signal Fire AI-12** — Provides **0.05 µm core alignment accuracy**, compared with 0.1 µm for the AI-9.
- **Signal Fire AI-30** — Combines **0.05 µm core alignment accuracy** with a **built-in one-step electric cleaver** and an OPM measurement range extending to **+30 dBm**.