



M12 A-Coded 12-Pin Male Straight Connector IP67 IEC 61076-2-101| Kronz

Our Product Introduction

Basic Information

- Place of Origin: Guangdong, China
- Brand Name: KRONZ
- Certification: CE
- Model Number: H1212MA-7/H1212MA-9
- Minimum Order Quantity: 10 pieces
- Price: Negotiable
- Packaging Details: Paper box packing
- Delivery Time: 5-8 working days
- Payment Terms: T/T, Western Union
- Supply Ability: 100000 pieces per month



Product Specification

- Contact Resistance: $\leq 5\text{m}\Omega$
- Ingress protection: IP67 Or Higher
- Output Current: Max. 500mA
- Pin: 12 Pin
- Isolation Method: Optocoupler
- Connector Insert: Plastic, PA, Black
- Locking mechanism: Screw Lock Or Snap Lock
- Input Power: 2W
- Contact Nut Material: Brass, nickel-plated
- Type: Cable Connector
- Highlight: **M12 A-Coded male connector IP67 ,
12-pin straight connector IEC 61076-2-101,
M12 male connector with warranty**

Product Description

M12 A-Coded 12-Pin Female Field Wirable Connector with IP67 Protection and 90° Angled Design

The M12 A-Coded 12-Pin Male Field Wirable Assembly, Straight is a high-density industrial circular connector engineered for on-site cable termination with flexible cable gland options. Manufactured to IEC 61076-2-101, this straight-type connector delivers IP67 environmental protection with 12-pin capacity and supports two cable entry sizes — PG7 (4–6mm) and PG9 (6–8mm) — giving installers the flexibility to match a wider range of cable diameters without changing connector models.

The connector nut is constructed from steel-zinc alloy with nickel plating for corrosion-resistant mating in demanding environments. The clamp base housing uses PBT/PA (polybutylene terephthalate / polyamide) black plastic, combining lightweight construction with excellent chemical resistance and dimensional stability. Contacts are gold-plated brass for low contact resistance ($\leq 5\text{m}\Omega$) and reliable signal transmission over 100+ mating cycles. FPM/FKM (fluoroelastomer) seals maintain IP67 protection across the full operating range of -25°C to $+85^{\circ}\text{C}$.

With an overall length of approximately 60mm and outer diameter of $\varnothing 20.2\text{mm}$, the compact straight form factor is suitable for standard panel installations, cable-to-cable connections, and sensor wiring where cable exit aligns with the mating axis.

Key Features

IP67 Environmental Protection: Fully dust-tight and waterproof. Withstands immersion in 1 meter of water for 30 minutes. FPM/FKM elastomer seals resist oil, coolant, and chemical exposure for long-term sealing integrity.

Dual Cable Gland Options (PG7 / PG9): Available in PG7 (4–6mm) and PG9 (6–8mm) versions, accommodating a wider range of industrial cable diameters. Select the gland size that matches your cable without needing adapter fittings.

12-Pin High-Density Configuration: Twelve independent circuits in a single M12 connector footprint. Supports multi-sensor arrays, signal distribution, and complex I/O wiring while reducing connector count and panel space.

Gold-Plated Brass Contacts: Brass contacts with gold plating deliver $\leq 5\text{m}\Omega$ contact resistance and $\geq 100\text{M}\Omega$ insulation resistance, ensuring stable signal integrity in noise-sensitive industrial environments.

PBT/PA Plastic Housing: Lightweight clamp base made of PBT/PA black plastic with excellent chemical resistance and dimensional stability. Reduces overall weight compared to metal housings while maintaining mechanical durability.

Field-Wirable — No Crimping Tools: Screw termination with no crimping tools required. Strip, insert, tighten — complete wiring on-site in under 10 minutes.

Technical Specifications

Parameter	Specification
Applicable Standard	IEC 61076-2-101
Connector Type	M12 A-Coded Male, Field Wirable, Straight
Pin Count	12
Thread Size	M21*1
Overall Length	~60 mm
Outer Diameter	$\varnothing 20.2\text{ mm}$
Connector Nut Material	Alloy / Steel-Zinc, Nickel-Plated
Contact Material	Gold-Plated Brass
Contact Carrier Material	PA (Polyamide), Black
Clamp Base Housing Material	PBT / PA (Polybutylene Terephthalate / Polyamide), Black
Sealing Material	FPM / FKM (Fluoroelastomer)
Rated Current	1.5A
Rated Voltage	30V
Insulation Resistance	$\geq 100\text{ M}\Omega$
Contact Resistance	$\leq 5\text{ m}\Omega$
Pollution Degree	3
Operating Temperature	-25°C to $+85^{\circ}\text{C}$
Mechanical Life	> 100 Mating Cycles
IP Rating	IP67

Coding	A-Coded
Termination Type	Screw Connection
Cable Exit Diameter	4–6mm (PG7) / 6–8mm (PG9)

Dimensions

- Thread Standard: M21*1
- Overall Length: ~60 mm
- Outer Diameter: Ø 20.2 mm
- Cable Exit: 4–6mm (PG7) / 6–8mm (PG9)
- Orientation: Straight (0°)
- Mating Compatibility: All M12 A-Coded 12-Pin Female Connectors

Pin Layout (12-Pin A-Coded Male)

- The 12-pin configuration arranges contacts in a single circle inside the M12 male housing, following IEC 61076-2-101 A-Coded standard:
- 12 pins evenly distributed in a circular pattern
 - Standard A-Coded keyway positioning (male)
 - Fully compatible with any M12 A-Coded 12-pin female connector from all major manufacturers

Applications

- Multi-Sensor Junctions:** Aggregating signals from multiple sensors at a single connection point — temperature, pressure, proximity, and level sensors
- Dense I/O Distribution:** Connecting high-channel-count sensor arrays in process automation and factory floor installations
- Signal Distribution Panels:** Multi-circuit breakout points for distributing control signals to actuators or field devices
- Robotics & Motion Systems:** Feedback wiring for multi-axis motor controllers, encoder clusters, and servo drive interfaces
- Conveyor Systems:** Centralized sensor wiring for length measurement, object detection, and position feedback along conveyor lines
- HVAC & Building Automation:** Multi-zone thermostat and damper control connections where space inside panels is limited
- Agricultural Machinery:** Sensor arrays for soil moisture, temperature, GPS guidance, and implement monitoring in outdoor environments
- Water & Wastewater Treatment:** IP67-rated multi-channel connections for level sensors, pH probes, and flow meters in wet environments
- Food & Beverage Processing:** Washdown-rated installations requiring IP67 protection against high-pressure cleaning
- Material Handling:** AGV (Automated Guided Vehicle) signal links and conveyor sensor networks

PG7 vs. PG9: How to Choose the Right Cable Gland

Factor	PG7 (4–6mm)	PG9 (6–8mm)
Cable outer diameter	4–6 mm	6–8 mm
Typical cable types	Thin sensor cables, instrumentation cables, small multi-conductor cables	Heavier sensor cables, shielded cables, larger multi-conductor cables
Sealing grip	Optimized for smaller diameter cables	Optimized for larger diameter cables
Bend radius	Smaller bend radius, tighter routing	Larger bend radius, more cable flexibility
Common applications	Proximity sensors, small signal cables	Shielded encoder cables, multi-pair instrumentation cables

Important: Using the wrong gland size will compromise the IP67 rating. A PG7 gland with an 8mm cable will not seal properly, and a PG9 gland with a 4mm cable will not grip the cable securely. Always measure your cable's outer diameter (including jacket) before selecting.

Installation Guide

- Prepare the cable:** Strip the outer jacket to expose 12 individual conductors. Ensure total cable diameter matches the gland size — 4–6mm for PG7 or 6–8mm for PG9.
- Thread the components:** Pass the cable through the coupling nut, cable gland insert (PA), and FPM sealing ring in the correct order.
- Terminate the wires:** Insert each of the 12 conductors into its designated male pin terminal. Tighten each screw — avoid overtightening to prevent contact damage.
- Assemble the housing:** Slide the male connector housing over the terminated contacts, aligning the A-Coded keyway notch.

Seal and tighten: Thread the coupling nut onto the M21*1 housing thread. Tighten by hand until the FPM seal compresses uniformly around the cable.

Verify: Check all 12 pins are seated, housing is fully threaded, and cable cannot be pulled out. Test continuity on all 12 circuits before commissioning.

Complete Product Range — M12 A-Coded Male Field Wirable, Straight (PG7/PG9)

Pin Layout	Pins	Connection	Coding	Current	Voltage	Angle	Cable Ø	Part Number
○○○	3	Screw	A-CODE	4A	250V	Straight	4–6mm (PG7)	H1203M-7
○○○	3	Screw	A-CODE	4A	250V	Straight	6–8mm (PG9)	H1203M-9
○○○○	4	Screw	A-CODE	4A	250V	Straight	4–6mm (PG7)	H1204M-7
○○○○	4	Screw	A-CODE	4A	250V	Straight	6–8mm (PG9)	H1204M-9
○○○○○	5	Screw	A-CODE	4A	60V	Straight	4–6mm (PG7)	H1205M-7
○○○○○	5	Screw	A-CODE	4A	60V	Straight	6–8mm (PG9)	H1205M-9
○○○○○○○○	8	Screw	A-CODE	2A	30V	Straight	4–6mm (PG7)	H1208M-7
○○○○○○○○	8	Screw	A-CODE	2A	30V	Straight	6–8mm (PG9)	H1208M-9
○○○○○○○○○○○○	12	Screw	A-CODE	1.5A	30V	Straight	4–6mm (PG7)	H1212M-7
○○○○○○○○○○○○	12	Screw	A-CODE	1.5A	30V	Straight	6–8mm (PG9)	H1212M-9

Frequently Asked Questions

Q1: What is the rated current and voltage for the 12-pin M12 straight male connector?

The 12-pin M12 A-Coded straight male connector is rated at 1.5A per pin at 30V AC/DC. The reduced current and voltage ratings compared to lower pin counts (e.g., 3/4-pin at 4A/250V) are due to the smaller contact size and tighter pin spacing required to fit 12 pins within the M12 housing. It is designed for signal-level and low-power applications, not for power distribution.

Q2: What is the difference between PG7 and PG9 cable glands?

PG7 and PG9 refer to the cable gland size standard. PG7 accepts cables with an outer diameter of 4–6mm, while PG9 accepts cables with an outer diameter of 6–8mm. Choose the gland size that matches your cable's outer diameter for proper sealing and strain relief. Using the wrong gland size will compromise the IP67 rating.

Q3: Is the 12-pin M12 male connector compatible with 8-pin or 5-pin female connectors?

No. The 12-pin M12 A-Coded male connector only mates with 12-pin A-Coded female connectors. M12 connectors with different pin counts have different keyway positions and pin arrangements — they are physically incompatible by design. This prevents incorrect connections that could damage equipment or create safety hazards.

Q4: Can this 12-pin connector carry digital signals like IO-Link?

Yes. The 12-pin M12 A-Coded straight male connector supports digital signal transmission including IO-Link, PROFINET, and other industrial communication protocols at signal level. However, for high-speed data protocols like Ethernet (100 Mbps+), consider using D-Coded or X-Coded M12 connectors which are optimized for data transmission.

Q5: What is the difference between 12-pin A-Coded and 12-pin X-Coded?

Both support 12 pins, but they serve different purposes. A-Coded connectors are designed for sensor/actuator signal wiring at low voltage (30V, 1.5A). X-Coded connectors are designed for high-speed data transmission (up to 10 Gbps). They have different keyways and cannot be mated with each other.

Q6: What materials are used in this connector?

The connector nut is made of steel-zinc alloy with nickel plating. Contacts are gold-plated brass. The contact carrier is black PA (polyamide) plastic. The clamp base housing is PBT/PA (polybutylene terephthalate/polyamide) black plastic — lightweight yet chemically resistant. Sealing uses FPM/FKM (fluoroelastomer) rings that resist oils, chemicals, and UV from -25°C to +85°C.

Q7: How do I verify IP67 sealing after field installation?

After wiring, ensure: (1) the FPM/FKM sealing ring is seated evenly around the cable with no gaps; (2) the coupling nut is hand-tightened until the cable cannot move; (3) the housing thread is fully engaged with no cross-threading. IP67 rating is only guaranteed when the connector is properly assembled and mated with a compatible female connector.

Q8: What is the difference between this version and other M12 male straight connectors?

This version features a steel-zinc alloy connector nut (vs. brass in some variants) and a PBT/PA plastic clamp base housing (vs. zinc alloy in metal-housing variants). The PBT/PA housing makes it lighter and more chemically resistant. It also offers dual PG7/PG9 cable gland options for greater cable compatibility. Both versions share the same IEC 61076-2-101 standard, IP67 rating, M21*1 thread, and mating compatibility.

Q9: When should I choose PG7 vs. PG9?

Choose PG7 when your cable outer diameter is 4–6mm — typical for thin sensor cables, instrumentation cables, and small multi-conductor cables. Choose PG9 when your cable is 6–8mm — common for shielded cables, heavier sensor cables, and larger multi-conductor cables. Always measure the actual cable OD including the outer jacket before selecting.

KRONZ Kronz (guangzhou) Electronics Co., Ltd.



+8618924160375



sales02@kronz.cn



connector-industrial.com

Floor 7, Building 12B, Hanhe Robot Intelligent Manufacturing Base Exhibition Center, Xiangshan Avenue,
Zengcheng Economic Development Zone, Guangzhou, Guangdong Province, China