

M12 Connector Coding Reference

Ref M12-REF-01 | Code letters, pole counts, and what the letter does not tell you | Last updated 15 September 2026

What the code letter does

An M12 connector looks the same whichever code it carries: 12 mm thread, same coupling nut, same panel cutout. The code is a set of molded keys and grooves inside the shell. Its only job is to stop a plug of one code entering a receptacle of another, so a technician working at speed cannot push a power plug into a data port. The letter is a **mechanical key**. It is not an electrical rating, and it does not tell you the current, the voltage or whether the cable is shielded.

This sheet lists the codes you will meet, the pole counts they normally appear in, and what each is used for. Where a value matters on your machine, take it from the connector body datasheet and write it on the drawing - do not infer it from the letter.

Coding at a glance

Code	Poles you normally see	What it is used for	Will not mate with
A	3, 4, 5, 8, 12 (up to 17 on some bodies)	Sensors, actuators, discrete I/O, IO-Link, low-voltage DC	Any other code
B	5 (4+PE on older PROFIBUS)	PROFIBUS DP and Interbus fieldbus	All others
C	3, 4, 5, 6	AC power on dual-keyway bodies, mostly North America	All others
D	4	100 Mbit industrial Ethernet, PROFINET	All others
K	4+PE, 5	AC power at higher voltage on the same 12 mm shell	All others
L	4+PE, 5	DC power for PROFINET loads and field devices	All others
P	4+PE, 5	AC power on the newer coding, used on EtherCAT power runs	All others
S	3+PE	AC power, single-phase motor and drive supplies	All others
T	4	DC power, compact 12 mm alternative to 7/8 in. connectors	All others
X	8	10 Gigabit Ethernet up to Cat6A, GigE Vision, PROFINET	All others
Y	8 (data plus power in one shell)	Hybrid: data pairs and power in one connector instead of two	All others

Three traps that cost real money

- 1. The letter is not a rating.** Two A-coded 4-pole cordsets can carry very different currents depending on the contact, the cable and the ambient temperature. Nothing about the keyway tells you which is which.
- 2. Same code is not the same pinout.** Coding stops cross-mating between codes; it does nothing about pin 1 sitting in a different position on two suppliers' A-coded 5-pole parts. Pinout has to come off the drawing, every time.
- 3. Shielding is separate from coding.** An X-coded body being 10-Gigabit capable says nothing about whether the cable in it is shielded, or how the shield is terminated. That is a cable and assembly decision.

What to put on the drawing

State this	Why it matters
Code letter and pole count	Mechanical compatibility
Pinout, drawn or referenced	Coding does not fix pin 1

State this	Why it matters
Rated current and voltage	Not set by the code letter
Shielded or unshielded, and how the shield lands	EMC behaviour lives here
Jacket compound (PVC, PUR, halogen-free)	Oil, flex, UV and washdown duty
Ingress rating needed, in the mated state	See the IP rating reference sheet
Length, and the tolerance on it	Affects signal and fit

Where to find ours

A-coded sensor and actuator cordsets, B-coded PROFIBUS, D-coded PROFINET, X-coded Cat6A and the L / T / S / K / P power codings are all in the circular M8 and M12 cable range at hkwirecable.com, together with hybrid and single-pair constructions.

Turning this into a drawing line

Every row in this sheet is only useful once it is written down. The drawings we can quote fastest name the code letter and pole count along with the mating part, the length and the quantity, and say where a value is mandatory rather than preferred. Where a number is not yet known, write the operating condition instead - the detergent, the depth, the cycle count, the chemical - and we will work back from it.

What we need from you	What you get back
A drawing, sketch or photo of the mating part	A quoted assembly, built to the drawing you send
Length, quantity and the standard you are tested to	Continuity and pinout verified on every unit
Operating conditions where a rating is unclear	A recommendation on material and construction, with the reasoning

Capability, stated plainly

Four assembly lines and around 40 assemblers at our Longgang plant in Shenzhen, roughly a million pieces a year, built to IPC-WHMA-A-620 Class 3 under an ISO 9001 quality management system. Conductors from 32 to 12 AWG. Over 100 sets of tooling made in-house, so an overmold does not have to wait on a toolmaker. Jacketed samples in three working days; series production from MOQ 500 pcs, shipping fourteen working days after sample approval. Send the drawing to hkwirecable.com and we will come back with a quote or a question - not a generic brochure.

Note. General reference only. Electrical ratings, temperature limits and chemical compatibility are not set by any code letter or marking - they come from the connector body, cable compound and overmold geometry named on your drawing. HKWIRE builds and inspects to what your drawing states.