

Installation Guide: NexBot Robotics NET533-013 M12 Fieldbus Connector

SKU: NXB-CBL-NET533-013 | Revision: 1.0 | Category: Cables & Connectors > Connectors > Fieldbus Connectors

DANGER: Disconnect all power sources before beginning installation. Follow lockout/tagout (LOTO) procedures per OSHA 1910.147.

1. Required Tools & Materials

- Precision flat-head screwdriver (1.5mm)
- Wire strippers (22-26 AWG)
- Cable stripping tool for outer jacket
- Side cutters or cable shears
- Digital multimeter with continuity test function
- M12 torque wrench or appropriate spanner
- Cable marking labels
- Isopropyl alcohol and lint-free cloths

2. Pre-Installation Checks

1. Verify that the system is de-energized and locked out/tagged out before beginning installation.
2. Confirm the DeviceNet cable is the correct type and gauge for the application.
3. Inspect the NET533-013 connector components for any signs of shipping damage or manufacturing defects.
4. Ensure the installation environment is clean and dry to prevent contamination of internal components.
5. Review the DeviceNet pinout diagram for your specific application to ensure correct wire assignment.
6. Check that the cable diameter is within the acceptable range for the connector's cable gland to ensure a proper IP67 seal.

3. Installation Procedure

Step 1: Step 1: Disassemble Connector

Unscrew the rear cable gland nut and the main coupling nut from the connector body. Carefully separate all components and lay them out in order of assembly on a clean surface.

Step 2: Step 2: Prepare the Cable

Slide the cable gland nut, seal, and connector housing over the DeviceNet cable in the correct order. Using a cable stripping tool, carefully remove approximately 30mm of the outer cable jacket, taking care not to nick the inner conductors or shielding.

Warning: Applying excessive force can damage conductor insulation. Ensure the blade depth is set correctly for your cable.

Step 3: Step 3: Expose and Trim Conductors

Fan out the conductors and trim any foil shielding, drain wire, and fillers back to the edge of the outer jacket. Using wire strippers, remove approximately 5mm of insulation from the end of each conductor that will be terminated.

Step 4: Step 4: Terminate Conductors

Loosen the terminal screws on the connector insert. Following the standard DeviceNet color code (V+, CAN_H, CAN_L, V-, Shield), insert each conductor into its corresponding screw terminal. Ensure all wire strands are fully inserted before tightening.

Warning: Incorrect wiring can cause network failure or equipment damage. Double-check pin assignments before tightening.

Step 5: Step 5: Secure Conductors

Using a precision screwdriver, securely tighten each terminal screw. Gently tug on each wire to confirm it is firmly held in place. Ensure there are no stray wire strands that could cause a short circuit.

Step 6: Step 6: Assemble the Connector Housing

Carefully slide the main connector housing over the wired insert until it clicks into place, aligning any keying features. Ensure the insert is fully and correctly seated within the housing.

Step 7: Step 7: Tighten the Cable Gland

Slide the seal and cable gland nut forward and thread the nut onto the rear of the connector housing. Tighten the gland nut firmly to compress the seal around the cable jacket, which is critical for achieving the IP67 rating.

Warning: Do not overtighten the cable gland, as this can damage the cable or the seal. Tighten until snug.

4. Post-Installation Verification

1. Use a multimeter to perform a continuity test between the screw terminals and the corresponding pins on the M12 interface to verify correct wiring.
2. Perform a short-circuit test between all adjacent pins to ensure no conductors are crossed.
3. Visually inspect the assembled connector to ensure the cable gland is tight and the housing is properly secured.
4. Connect the NET533-013 to its mating receptacle and tighten the coupling nut to the recommended torque to ensure a secure, vibration-resistant connection.
5. After powering on the system, check the network status indicators on the connected devices to confirm successful communication.
6. Secure the cable near the connector using a cable tie to provide strain relief and prevent stress on the terminations.

Note: For technical support, contact your authorized service provider or visit <https://robotics.barca.group/support>.