



Intel® Connects Cable Handling Guidelines

Introduction

This document describes installation and handling guidelines for Intel® Connects Cables. Please read the entire document before you begin; it contains suggestions for a successful installation, as well as important safety and handling information.

For more information about the product, please visit the Intel Connects Cable Web site: www.intelconnects.com.

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Installation Recommendations

Your installation may present a unique set of challenges and user preferences. Before you begin:

- Create a cable placement plan taking into account the cable's minimum bend radius, based on a survey of the cable route. The minimum bend radius for **installed cable** is **25mm** (assuming *tensile load does not exceed 66N*). However, the bend radius for cable **while being installed** is **50mm** (assuming *tensile load does not exceed 220N*). Make sure to include in your plan available equipment and labor.
- Identify any potential problems with cable placement and make plans to protect the cable in areas of potential damage, such as around sharp bends or angles, within raceway transitions, along walls or baseboards, or in congested false ceilings and floors.
- Coordinate the installation to minimize interference with the customer's operations.
- Intel Connects Cables are designed to be installed **by hand, one cable at a time**. The cable must be installed with the minimum installed bend radius (25 mm) in mind and should not be crushed, twisted, or kinked. Bends tighter than 25 mm are likely to impair the performance of the product.

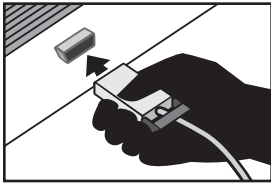
Handling the cables and connectors

- Treat the cable gently. Avoid putting stress on the joint between the optical cable and the metal plug, which are specified to a maximum pulling tension of only 33 Newtons (N). For example, when unplugging an Intel Connects Cable from a socket, first unlock the bail, and then grasp the connector and pull it out. Do not pull the connector out by pulling on the optical cable. Similarly, if it is necessary to pull one end of the Intel Connects Cable, do not grab the metal connector and pull. Instead, grab and pull the optical cable jacket. Do not exceed the maximum pulling tension of 33 N.
- Intel Connects Cables have not been tested with tools used for optical cable installation such as pulling tools and lines, lubricants, or tension monitoring equipment. Such tools can put excessive pressure and force on the cable, and are **not** recommended.

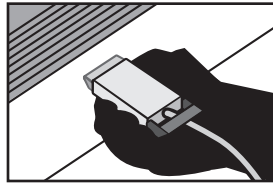
- If you use cable ties, **DO NOT** tighten the cable ties to the point where they deform, crimp, or crush the cable.
- Avoid excessive tension or bending that could occur when pulling the cable around a sharp corner such as a bracket support. When installed, the cable should not be under tension.
- Avoid crushing the cable with equipment, foot traffic, or from installation under a raised (false) floor.
- Do not pull the fiber optic cable over other cables because excessive friction can damage the cable. Multiple cables can also become entangled, causing additional damage.
- Secure the cable to available supports whenever possible. Do not attach the cable to other cables that may be moved later or to steam or water lines.
- Choose rack space for storing the slack to provide maximum protection for the cable while maintaining the cable's minimum installed bend radius (25 mm). Slack should also be considered for any additional moves or equipment racks and maintenance purposes.
- Avoid routing the cable through high-traffic areas. You'll also need to protect the cable from any damage that might occur from cables being pulled over it.
- If unreeled cable is placed on the floor during installation in a high-traffic area, use a barricade or some other way to prevent vehicles or pedestrians from passing through the area.
- If the cable is unreeled during installation, coil the cable to prevent twisting or kinking.
- The Intel Connects Cable conforms to Telcordia GR-409 standards and is intended for indoor use over an operating temperature range of 0°-60°C. Please contact Intel if your operating environment exceeds these minimum and maximum ranges.

During installation of the Intel Connects Cable, please observe the following guidelines.

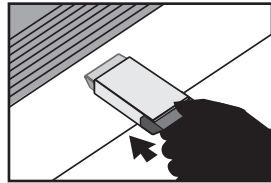
Installation Guidelines



Step 1: Align plug
Correctly align the plug with the receptacle.



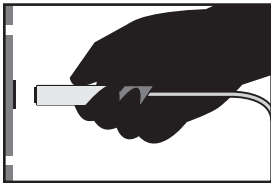
Step 2: Insert plug
Gently insert plug into receptacle.



Step 3: Push bail in
Gently push the bail in, to secure cable connection.

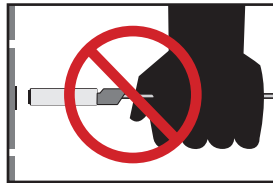
To uninstall or remove the cable, perform the above steps in reverse order by first pulling out the bail.

Handling Guidelines

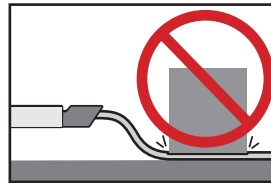


Yes

Do not pull on the cable



No



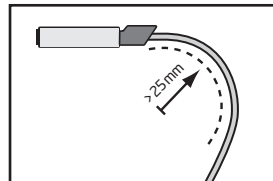
Do not crush the cable



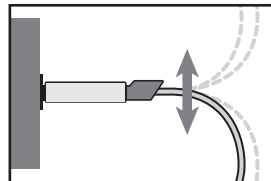
Do not kink the cable



Do not twist the cable

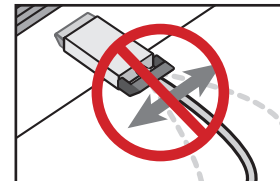


Do not overbend the cable
Do not install the cable with a bend radius tighter than 25 mm



Yes

Cable can bend up and down.



No

Bending the cable side to side will damage the cable.

Vertical runs

Installing the cable in a vertical run can present additional challenges. Here are some guidelines to consider:

- Work from the top down, whenever possible.
- Each cable in the vertical run should be supported by its own support grip or hook-and-loop tie at the top of the run.
- Never use an Intel Connects Cable to support another cable.
- Install additional support grips or hook-and-loop ties wherever additional security is desired.
- Secure the cable in riser wiring closets with cable ties or straps as needed to prevent accidental damage to the cable.
- Observe the governing fire codes; use non-combustible tubing for the fire stops at each floor.

Cable trays and ladder racks

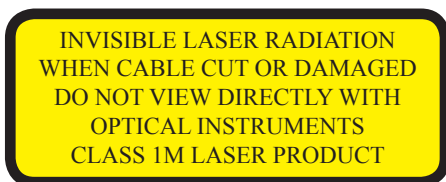
Follow these guidelines when installing cable in cable trays or ladder racks:

- Install the cable in a way that will avoid damage when additional cables are installed or retrieved.
- **CAUTION:** Do NOT tighten the cable ties to the point they deform, crimp, or crush the cable.
- Use supports to maintain the fiber optic cable's minimum bend radius (25 mm) around corners.
- At raceway transitions, maintain the minimum bend radius and provide support and protection for the cable.
- When routing cable into equipment from the ceiling or a ladder rack, maintain the cable's minimum bend radius.

Raised floors and suspended ceilings

When installing the Intel Connects Cable under raised floors or above suspended (false) ceilings, observe the following guidelines:

- Secure the cable to available supports or larger cables when possible.



- When entering or exiting a raised floor or suspended ceiling, make sure the minimum bend radius (25 mm) is maintained.

Health, Safety, and Regulatory Concerns

The health and safety of workers and the public are paramount in any fiber optic installation. Please take the proper safety precautions and observe local safety codes at all times.

Laser safety notices

Class 1M invisible laser radiation – Viewing the laser output of a damaged or broken fiber with certain optical instruments (e.g., eye loupes, magnifiers and microscopes) within a distance of 100 mm may pose an eye hazard.

Use of controls or adjustments or performance of procedures

other than these specified in the product datasheet may result in hazardous radiation exposure.

Complies with 21 CFR 1040.10 except for deviations pursuant to Laser Notice No. 50 dated July 26, 2001.

Safety precautions

Observe the following safety precautions when installing the Intel Connects Cable:

No aqueous wash: Avoid using liquid cleaning solutions or solvents. The module enclosures are not liquid-tight.

System earth grounding: To protect against possible electric shock from external sources, please ensure that the equipment to which this product will be installed is properly earth grounded.

Lightning/electrical storm: Risk of electric shock—Do not connect, disconnect, or perform installation or maintenance of this product during an electrical storm.

The Intel Connects Cable is for indoor installation only.

To ensure the safety of yourself and other employees in or near the work area, follow all relevant rules, procedures, and policies regarding setting up barricades, barriers, ladders, scaffolding, and warning signs. Any material used above the floor must be positioned in a way that minimizes its likelihood of falling and injuring individuals passing through or working underneath.

Building and fire codes

Construction in most areas of the world is regulated by building codes and standards, which are enforced by local agencies. You must have a thorough understanding of the applicable building and fire codes in your area before you begin the installation. These codes typically apply to retrofits, expansions and new installations, but may vary depending on the type of installation and the location.

Each government and local jurisdiction has its own method for enforcing its building and fire codes and standards. Also, some industries such as maritime, railroads, mining and military installations have their own codes and standards for installation. Be familiar with all applicable codes and standards prior to the planning stage.

Building and fire codes govern the installation practices and materials used in the construction of communication systems. These codes ensure quality installation, the safety and health

of individuals, and the integrity of property.

National Electrical Code*

Before you begin the installation, make sure you are familiar with the national electrical codes as well as regional and local codes that pertain to your area.

The National Electrical Code* (NEC) provides guidelines for all electrical installations in residential, commercial, and industrial



buildings. NEC article 770 governs the installation of optical fiber and states that all fiber installed within a building are listed as resistant to the spread of fire in accordance to its specific building application: plenum, riser, or general purpose. You should be familiar with NEC article 770 and use the proper type of fiber for each specific installation.



Environmental compliance marking for the Intel Connects Cable

European Union WEEE marking

Waste Electrical and Electronic Equipment marking per the European Union directive 2002/96/EC. Within the European Union, the WEEE logo means this product must be disposed of separately from normal household waste in order to promote reuse, recycling and other forms of recovery with a view to reduce landfill.

China Pollution Control marking China Environmental Friendly Use Period (EFUP) mark, where 30 in the marking denotes 30 years. The number provided as the EFUP is provided solely to comply with applicable laws of the People's Republic of China. It does not create any warranties or liabilities on behalf of Intel Corporation to customers.

Technical Support

For information about technical support, please visit the Intel Connects Cable Web site (www.intelconnects.com). We welcome your comments and suggestions on how we can improve our product and documentation.