SOLARIXPEDIA

How-to: 5 Criteria for Choosing Cabling - End Customer

---

1) WHAT CATEGORY?

- Categories are specified in cabling standards. They determine the electrical and physical parameters of the components and their transmission properties (i.e. the ability to transmit specific Ethernet protocols or other technologies).
- Select the cabling category according to the device you want to operate in your installation. Requirements for transmission properties or specifications of supported protocols can be found in the materials of the manufacturer of your device (e.g. in their product datasheets) or you can refer to the graphic below.
- When choosing a cabling category, also consider the performance needs for the future.

Category 5E

Max. 2,5 Gbps

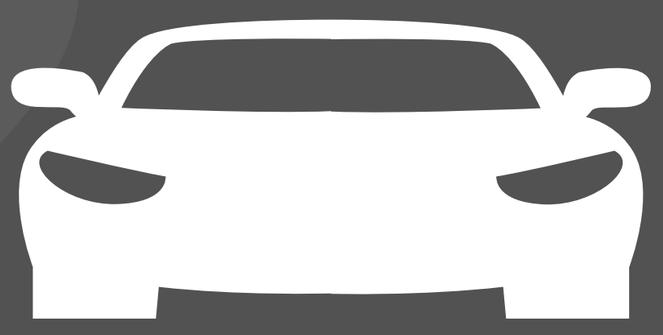
2.5GBASE-T

Category 6

Max. 5 Gbps

5GBASE-T

Category 6A, 7 and 7A



Max. 10 Gbps

10GBASE-T

- All of the above categories are backward compatible with older Ethernet protocols (e.g. 10BASE-T, 100BASE-TX and 1000BASE-T).
- Category 8 is not listed there as it is intended primarily for data centers and is therefore not suitable for regular installations.
- For regular installations, it makes no sense to consider category 7 or 7A, the reliability of the 10GBASE-T protocol is also well ensured by category 6A. In addition, there is RJ45 interface not specified for categories 7 and 7A. Category 6A components are most frequentely used to terminate category 7 and 7A cables.

www.solarix.cz

2) SHIELDED OR UNSHIELDED CABLING?

- An important point that depends on the interference in the building where the cabling will be installed (for more, see the MICE classification from EN 50173-1).
- Simply put, unshielded cabling is usually sufficient for common environments (i.e. offices, family houses, schools, etc.).
- In environments with strong interference (e.g. motors, contactors and relays, transmitters, induction heating equipment and other industrial equipment), it is advisable to use shielded cabling.
- For shielded cabling, it is necessary to have preparation for grounding the cabling in the building. Without proper grounding, shielded cabling will not work correctly. If you cannot ensure this, choose unshielded cabling. In no case do not install shielded cabling without its proper grounding.

3) FIRE SAFETY

Flammable — Least flammable

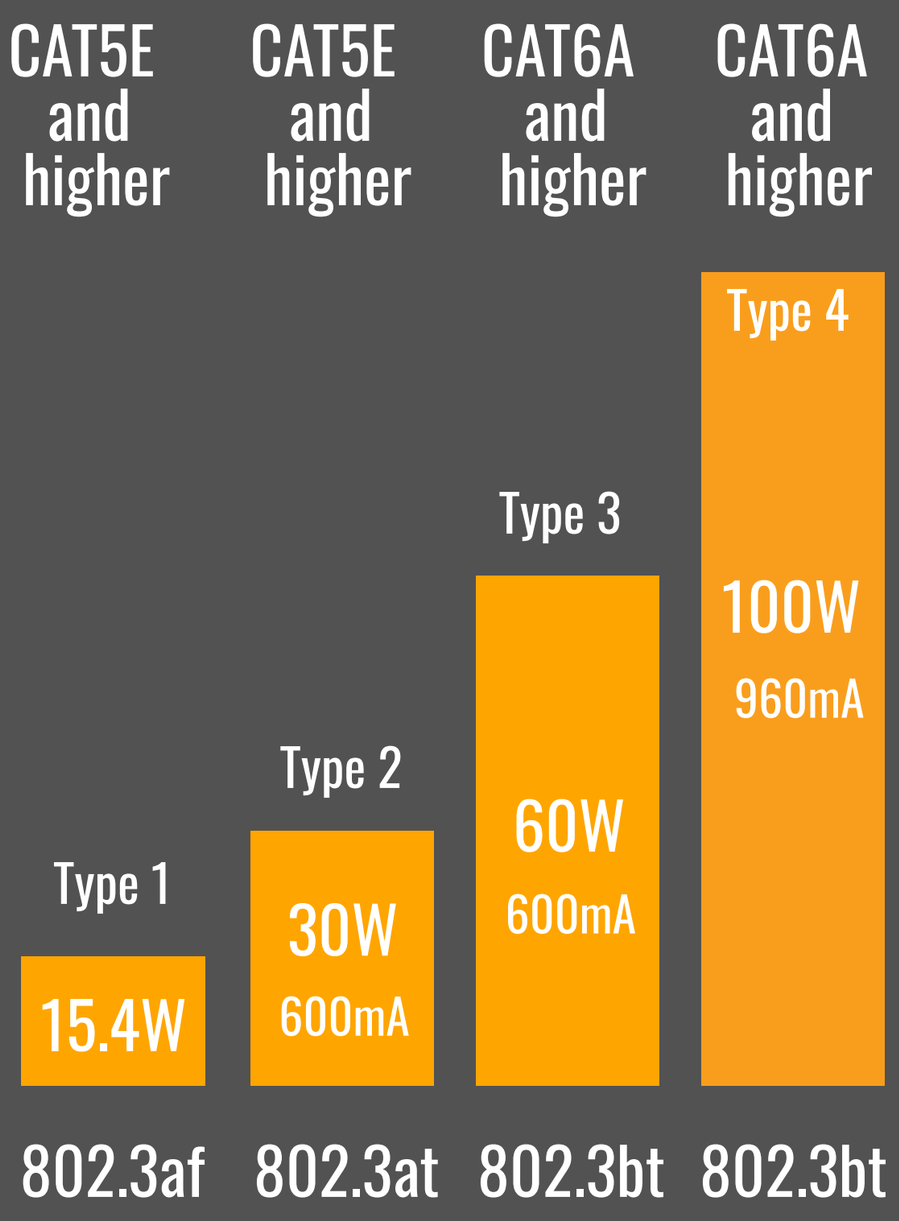
Fca Eca Dca Cca B2ca

- For common environments (offices, family homes, etc.), choose cables with a reaction-to-fire class of at least Dca.
- For environments where people gather or their mobility is restricted in any way and for escape routes, we recommend choosing cables with a reaction to fire class of B2ca.
- Outdoor cables (Fca) must be terminated in the building within a maximum of 2 m of their length and or must be routed in a protected path that meets the fire requirements defined for the given environment type.
- The legislative requirements for individual cable types and their reaction to fire classes depending on the environment in which these cables can be used are usually specified in your country national legislation.

www.solarix.cz

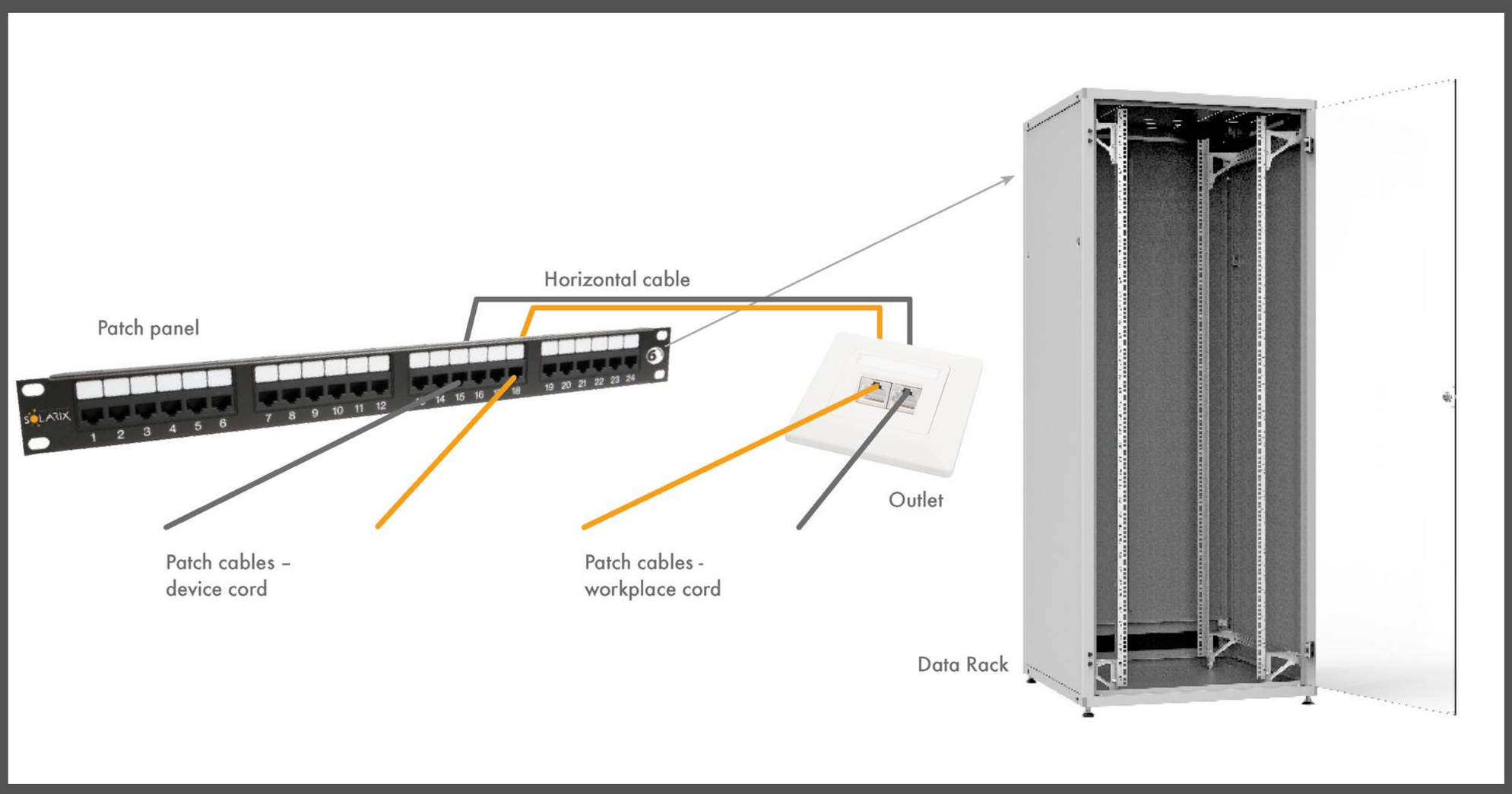
4) POE - POWER OVER ETHERNET

- Power over Ethernet (PoE) is a technology that can transmit data and power devices over a single data cable.
- PoE places increased demands on individual cabling products (both cables and connecting hardware).
- PoE is a significant trend in IT infrastructure today.
- Typical PoE devices are WiFi access points, IP cameras, VoIP phones, sensors, LED lighting, etc.
- See the chart for suitable cabling for individual PoE types.



5) INSTALLATION AND CORRECT DESIGN

- Terminate the data cables on the active products side in a patch panel and place it in a data rack.
- On the device side (e.g. PC, printer, TV, etc.), the cable must be terminated in a data outlet.
- Do not terminate the cables with regular RJ45 connectors (except for cameras or other special cases, e.g. MPTL topology with MPTL connectors).
- On both sides of the cabling, connect the individual devices to the patch panel and data outlet using RJ45/RJ45 patch cables (see the image below or the topology here).



www.solarix.cz

CONCLUSION TIPS

- Installation and correct selection of cabling requires experience and knowledge of standards (correct connection of shielding, grounding, compliance with fire safety requirements, segregation of power and data cables, sufficiently designed and dimensioned cable routes and all their parts, etc.). The documents to consult are EN 50174-1, EN 50174-2 and EN 50174-3. Good knowledge of these standards is absolutely essential for the cabling installation and its reliable functioning.
- We recommend that you ask a professional company that deals with the installation of low-current technologies and that works with the above documents on a daily basis to install and select the right products for your installation. This is the only way to ensure your cabling will work correctly.
- You can find other important technical information related to structured cabling in our knowledge database Solarixpedia. Be sure to check it out :-)

NEED ADVICE?

If you need any advice on Solarix products, please contact us at info@solarix.cz or by phone at +420 840 505 555.

Note: more information on the correct design and installation procedures can be found in the EN 50174 standards. We recommend purchasing these documents and strictly follow them. They contain a lot of useful and practical information.

www.solarix.cz

Výrobce/Producer/Producent/Výrobca:

INTELEK LTD

Ericha Roučky 1291/4, Brno, 627 00, CZ

+420 840 505 555

www.solarix.info • info@solarix.info