

PROFIBUS-(UNITRONIC® BUS PB) and Industrial Ethernet Cables (ETHERLINE®)

- Only use cables which are designed for a particular application (stationary application, flexible or highly flexible application, torsion stress, festoon systems, outdoor use, direct burial). They have a special cable design and are tested accordingly.
- PROFINET differentiates cables between Type A (stationary application, solid conductor), Type B (flexible application, e. g. 7-wire stranded conductor) and Type C (highly flexible application, e. g. 19-wire stranded conductor). Generally PROFINET has a cross section AWG22.
- It is advisable to separate cables for different cable categories (network voltage cables, auxiliary power supply, data cables and sensitive cables for measurements) in individual bundles.
- Power supply cables and data cables should be positioned at a minimum distance of 10cm resp. a metallic separator has to be mounted or data cables should be inserted in a metallic tube. If possible a separate cable tray should be used.
- Cross two cables always right-angled (90°).
- Ground screenings of all cables going into a cabinet at the entry of the cabinet.
- For cabling outside buildings we recommend the use of Fibre Optic Cables. Only use approved cables for outdoor use. Pay attention to warning signs (power cables, gas pipes).
- Place redundant cables in principle on separate cable routes to avoid a damage at the same time.
- Protect copper and fibre optic cables outside of cable trays by inserting them in plastic tubes (in case of strong mechanical stress use metallic tubes).

- Replace damaged cables immediately.
- Note the temperature range of cables. Deviations from these temperatures may lead to a lower mechanical and electrical load resp. lead to a damage.
- Tensile strength data cables are exposed to (Copper and Fibre Optic cables) must not exceed the permitted maximum. Otherwise transmission characteristics can not be guaranteed any more. A strain relief should be installed.
- Applications with torsion stress require a special cable design. The same applies to power chain and festoon cables. They are not interchangeable.
- Adhere to the minimum bending radii stated in Data Sheets and Catalogue. Under-running the minimal bending radius may result in a damage of the cable. Or may lead to a failure of the system.
- Avoid forming loops and avoid pulling the cable over sharp edges.
- Realise a concept for grounding and equipotential bonding when installing copper cables and differentiate between hazardous (Ex) and non-hazardous areas.
- Electrical, magnetic and electromagnetic fields affect signal transmission and possibly interfere electronic components. Today "Electromagnetic Compatibility" (EMC) is a basic requirement when installing systems. Therefore all metallic parts of a plant should be included in the grounding and equipotential bonding concept. Only use screened cables and connectors, alternatively Fibre optic Cables and FO connectors which are insensitive against electromagnetic interferences.

- Recommendation: A detailed "Planning and Installation Guide" for PROFIBUS and/or PROFINET may be ordered at PROFIBUS International Support Center (PNO), Karlsruhe/Germany.

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