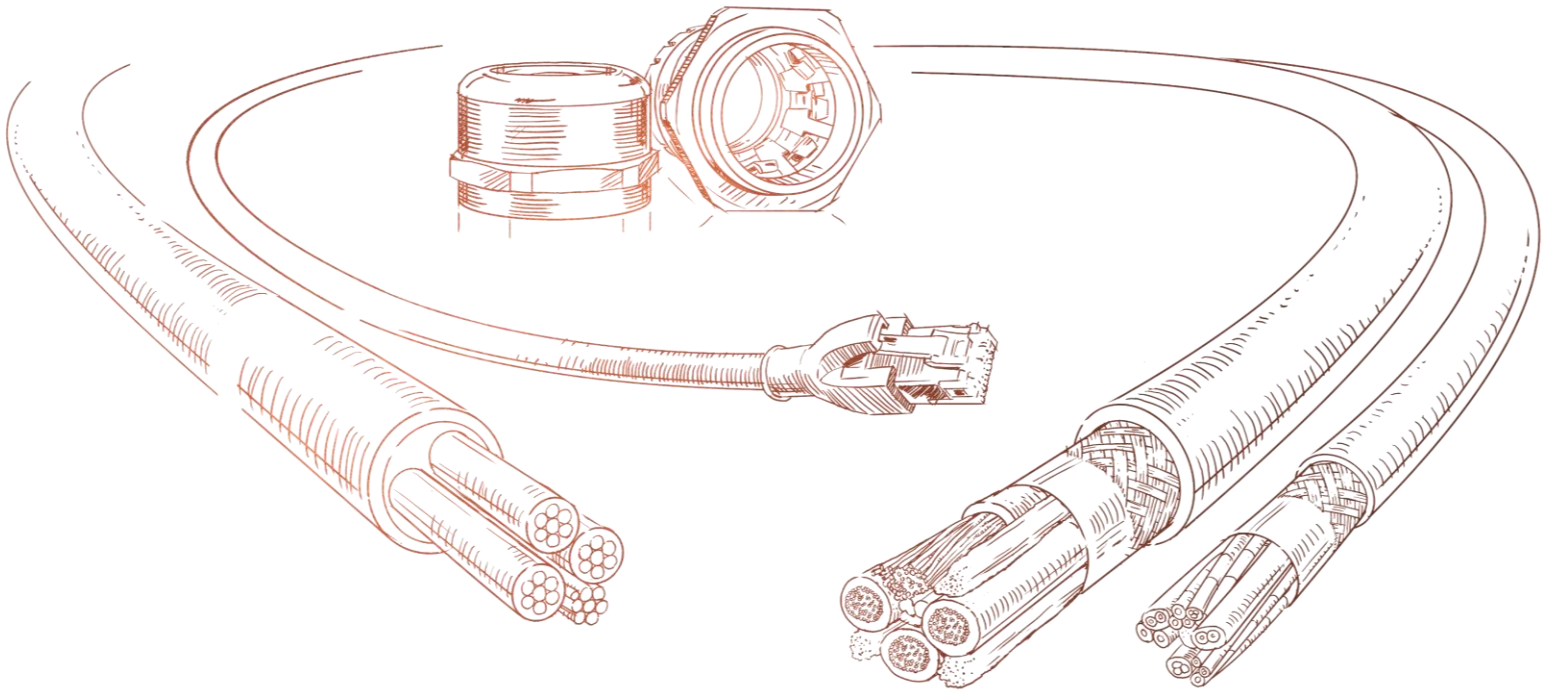
HELUKABEL®



Channeling POWER

Industry Automation

EtherCAT Data Cables & Connectors

Speaker



Horst Messerer
Product- & Sales Manager DNBT
Data **N**etwork **B**us **T**echnology

- 37 years experience in cable business
- EtherCAT, Single-Pair-Ethernet, Profibus, Profinet, AS-Interface, CC-Link… standards well known
- Association activities in some of the above-mentioned standards
- Development of tailor-made solutions

ETG EtherCAT

ETG = **E**therCAT **T**echnology **G**roup
The ETG is a global organization in which OEM, End Users and Technology Providers join forces to support and promote the further technology development.

The main driver behind EtherCAT is company BECKHOFF and even the employees in EtherCAT organization meetings are BECKHOFF people.

The EtherCAT Technology Group is an official partner of the IEC. Both EtherCAT and Safety over EtherCAT are IEC-Standards (IEC 61158 and IEC 61784).

The EtherCAT Specification is available in English, Japanese, Korean, and Chinese.

ETG EtherCAT Organization

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EtherCAT success key

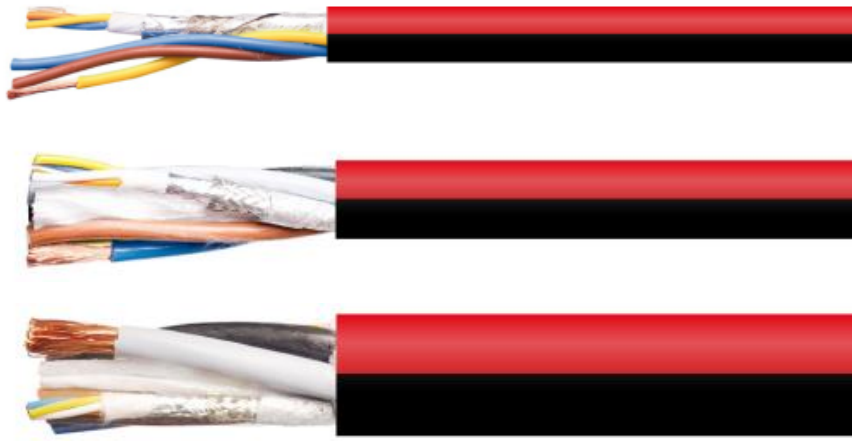
- **Open technology** for all potential users
- **It brings together** device manufacturers, technology providers, and users
- **Technical Working Groups** keeping EtherCAT stable and interoperable
- **Plug Fests in Europe, Asia, and America** each year. The Plug Fests bring EtherCAT device developers together to test and ensure device interoperability
- **Conformance Certificate** following a successful test in an accredited test lab.
- **Internationa**l seminars and workshops at tradeshows throughout the globe
- It also provides product guides, joint tradeshow booths, and seminar exhibits to help its members market their EtherCAT products.
- ETG has the largest number of members out of any fieldbus organization in the world and the **membership is for free**

EtherCAT Cable Types

- **Ethernet data cables**
- **Hybrid cables (Ethernet data + power)**
- Bus cables
- Motor cables
- Power cables
- Sensor cables
- Feedback / Encoder cables



Ethernet data cables



Hybrid cables

EtherCAT Cable Types Overview

(hybrid standard is on the way...)

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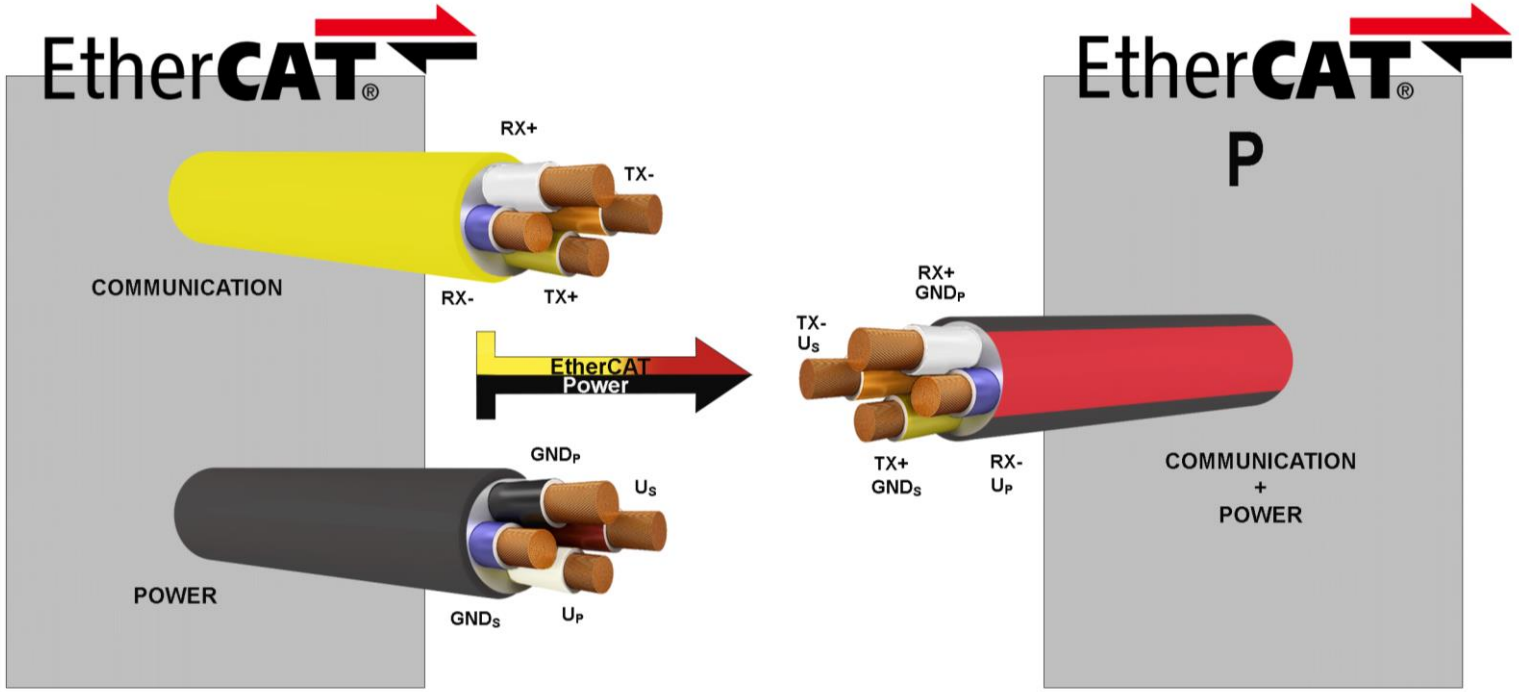




EtherCAT P

EtherCAT P is transmitting power over the data cores (like PoE Power over Ethernet).
The black jacket with red stripe is signaling that PoE is active inside.
=> 24 Volt DC max. 3A

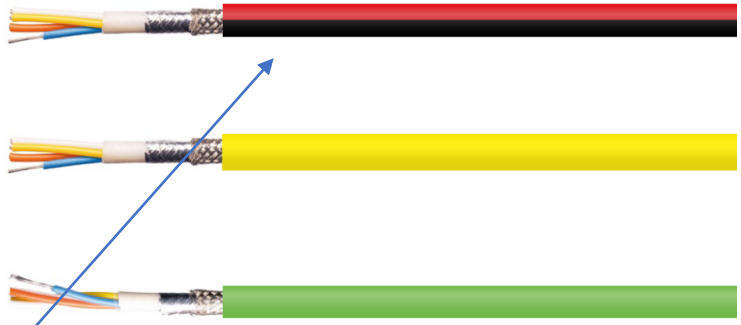




EtherCAT Data Cables

Data cables:

4 cores (star quad), AWG 22 mainly
AWG 24 + 26 (reduced lengths), PUR & PVC



- **EtherCAT** 100 Mbit – 2 pairs (star quad)
  colors green, yellow = only data transmission

- **EtherCAT P** 100 Mbit – 2 pairs (star quad)
  black with red stripe = data transmission & Power over Ethernet

- **EtherCAT G** 1 Gbit – 4 pairs
  AWG 24 + 26, PUR & PVC
  green, black



EtherCAT Hybrid Cables



Hybrid cable black with red stripe
Data element:
⇒ **Data transmission**
⇒ **PoE 24V DC 3A**

Power cores:
⇒ **Power transmission**
300 / 600 / 1000V AC (depending (on specification)

Hybrid cable black with yellow stripe
Data element:
⇒ **Data transmission**

Power cores:
⇒ **Power transmission**
300 / 600 / 1000V AC (depending (on specification)

EtherCAT Data Connectors

- RJ45 male IP20
  - 4 PIN 100 Mbit
  - 8 PIN 1 Gbit



- M8 male & female IP67
  - a-coded (4 PIN 100 Mbit)
  - p-coded (EtherCAT P 100 Mbit)





- M12 male & female IP67
  - d-coded (4 PIN 100 Mbit)
  - x-coded (8 PIN 1 Gbit)





EtherCAT Hybrid Connectors 100 Mbit

(hybrid standard is on the way...)

- B12 male & female
  EtherCAT + 2x0,75mm² Power



- B17 male & female
  EtherCAT + 3/4/5x1,5mm² & 2,5mm² Power



- B23 male & female
  EtherCAT + 5/6x2,5mm² & 4,0mm² Power



- B40 male & female
  EtherCAT + 5x16mm²Power

Color ring yellow = non PoE
Color ring red = active PoE





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