IXXAT CAN repeaters enable the physical coupling of CAN network segments. They can be used to easily change the topology of CAN systems to set-up tree or star networks. The integrated galvanic isolation provides a built-in protection against over voltage and the anti-noise circuit eliminates the effects of EMI.

IXXAT repeaters are especially designed for use in industrial environments, meeting high demands for robustness, temperature ranges and safety.

**Typical Industries**

- Factory Automation
- Energy
- Medical
- Transportation
- Aerospace
- Marine
- Robotics
- Security
- Home Automation

**Highlights**

- Cost savings due to simple wiring
- Increased system reliability
- Line protection up to 4 kV
- Almost no influence on real-time behavior
- Signal conversion between High- and Low-Speed CAN
- DIN-Rail backbone bus to line up and connect the devices easily
- Fiber optic enables transmission in areas with high electromagnetic disturbances
- OEM versions and design in solutions available

**Increased system reliability and protection**

CAN lines coupled with IXXAT repeaters are independent electric segments that can be optimally terminated in terms of signals. This substantially increases the system’s reliability.

The implemented monitoring function detects lines disturbed by permanent dominant levels. These lines are disconnected automatically, thus allowing the remaining network to continue functioning normally. After the fault has been eliminated, the disconnected segment is automatically reconnected to the network.

Depending on the type of repeater, the CAN lines are protected among each other and against the power supply up to 4 kV. In addition, the built-in CAN bus choke provides protection against signal peaks.

**System extension and increased number of nodes**

The freedom of using drop-lines and star topologies simplifies the wiring and allows system layouts which could not be realized using the common line structure (Picture 1).

Furthermore, according to the transceiver output capacities, the division of a CAN system into several subsystems, connected via CAN repeaters, increases the maximum number of bus nodes.

**Fast and transparent**

Using repeaters does not influence the real-time behavior of a system because in terms of transmission behavior, it corresponds to a network that consists only of lines.

Depending on Repeater version or physical layer, typical signal delay is between 150-300 ns, which is equal to a 30-60 m line length. Data transmission is transparent, so it can be used with any higher layer protocol (e.g. CANopen, DeviceNet) or customer-specific protocols.

Picture 1

Conventional bus structure
The distance between the two nodes furthest apart (1 & 6) is 220 meters

Extended structure with drop line
The distance between the two nodes furthest apart (1 & 4 or 4 & 6) is 150 meters
Application scenario in wind turbine

Three pitch control-drives shall communicate with the master controller via CAN. IXXAT CAN Repeaters enable star connection of the individual blades and enable stable communication by eliminating EMI effects and rebuild signals for transmission via sliprings.

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