NCN26010 10BASE-T1S MACPHY Ethernet Controller

50+ meters cable reach │ 40+ nodes on a single pair cable │ Lower costs

onsemi Advances Industrial Ethernet with 10BASE-T1S Controller

The NCN26010 is the first 10BASE-T1S integrated Ethernet MACPHY transceiver on the market. It is designed to provide reliable, industry leading, multi-point communication in industrial environments. It enables greater data throughput over existing cables, eliminating the need to run new cables, which is often the highest cost factor in a networking installation.

Enhanced noise immunity mode
- Best-in-class bit error rate performance
- Meets IEC6100-4-6 conducted-immunity test at 10 V_{rms} (highest class)
- Reaches 50+ meters, exceeding IEEE specs

Lowest line pin capacitance
- Enables 40+ nodes on a single twisted pair, 5x the requirement of IEEE 802.3cg standard
- Reduces installation complexity and cost: up to 70% fewer cables, up to 80% lower installation costs

Lower software maintenance costs
- Software support is greatly reduced by following the layered approach of the Ethernet ecosystem
- Unlike other networking solutions, changing Ethernet PHYs does not require modifications to upper software layers

Taking industrial Ethernet to the edge
- Ethernet that can go all the way to edge node devices
- Supports Power over Data Lines (PoDL)
- Replace legacy point-to-point & multi-point standards (including RS-485, CAN, FlexRay, RS-232, HART, etc.)

Specifications and Key Features

Key Features	
Enhanced Noise Immunity Mode	Exceeds noise immunity levels specified in IEEE 802.3cg, enabling 50+ meters reach
Lowest MDI capacitance	Enables more nodes per segment which lowers cabling, connector, and installation costs
Multi-drop	Connects multiple devices on a single twisted pair using one MACPHY per port
MACPHY	Connect to controllers, sensors, and other devices that may not include a MAC
Collision Detection Masking	Further increases noise immunity in pure PLCA networks
Physical Layer Collision Avoidance	The PLCA media-access protocol enhancement provides quasi-deterministic, real-time performance on a shared media

Specifications	
Ambient Temp	-40° to 125° C
Package type	NCN26010XFBR2G: TQFP-32, 5 mm x 5 mm NCN26010XMNTXG: QFN-32, 4 mm x 4 mm
Data rate	10 Mbps
IEEE standard	802.3cg-2019	10BASE-T1S
Cable reach	50+ meters on single pair CAT-5 UTP

In a new installation, one twisted pair cable can replace all yellow control cables required prior to 10BASE-T1S

Learn more about NCN26010 from onsemi

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