

NCN26010

Ethernet Controller, 10 Mb/s, Single-Pair, MAC + PHY, 802.3cg, 10BASE-T1S Compliant

Product Overview

For complete documentation, see the data sheet.

The NCN26010 device is an IEEE 802.3cg compliant Ethernet Transceiver including a Media Access Controller (MAC), a PLCA Reconciliation Sublayer (RS) and a 10BASE-T1S PHY designed for industrial multidrop Ethernet. It provides all physical layer functions needed to transmit and receive data over a single unshielded twisted pair. NCN26010 communicates to host MCUs via Open Alliance MACPHY SPI protocol.

Downloads	Software Product	Description	Version	Date Updated
Download	NCN26010 Example Software: Linux Implementation	User-space driver and example code to use the NCN26010 Development Kit with a Raspberry Pi	2	Sep 2022
Download	NCN26010 Example Software: RSL10 Implementation	Example drivers and software for RSL10. Includes both Free-RTOS and Lightweight IP examples.	1	Aug 2022
Download	NCN26010 Example Software: STM32 Implementation	Example drivers and software for STM32. Includes both Free-RTOS and Lightweight IP examples.	1	Aug 2022
Download	NCN26010 Example Software Documentation	Installation instructions and documentation to understand the structure of the software and HTML documentation of API.	2	Sep 2022

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Features

- **Enhanced Noise Immunity Mode:-** ENI extends the noise immunity to values well above the IEEE T1S standard- Allows the NCN26010 to withstand worst-case DPI and BCI immunity tests- Significantly improves the network reach when enabled, almost 2X better than competition- Unique to NCN26010
- **Lowest Line Pin Capacitance:-** Best-in-class line pin capacitance allows for the highest number of nodes per segment.- The NCN26010 supports up to 40 nodes on a 25-meter segment, well above the IEEE minimum standard- Lowers cabling, connector, and installation costs
- **Collision Detection Masking:-** Masking detected collisions allows operation in noisy conditions- Prevents false collision detection in high-noise environments - When used in conjunction with ENI, the NCN26010 has unparalleled noise tolerance
- **PLCA Precedence Mode:-** Lower PLCA ID's get precedence over higher ones - Provides arbitration similar to CAN: The Coordinator (i.e., the head node) sends a new beacon once any station transmits - Unique to NCN26010
- **Physical Layer collision avoidance PLCA:-** Allows higher throughput in multi-drop topologies
- **Two Configurable Digital Outputs that can Drive Low Current LEDs:-** Supports systems where up to two LEDs can provide status indicators
- **Open Alliance Compatible SPI Interface:-** Conforms to Open Alliance TC6 specs for Configuration and Data Frames to Host MCUs
- **MAC Address Filtering:-** By filtering frames based on the destination address, Ethernet frames not intended for a certain node are not processed by the host, thus reducing the load - The MAC will see the frame, process the address, drop it based on the filter criteria, and the host will not need to handle it
- **Supports IEEE802.3 CSMA/CD Collision Detection:-** PLCA mode will default to CSMA/CD collision detection, if needed





Applications

- Industrial Automation
- Sensor and Control Interfacing
- Home / Building Control
- Security and Field Instrumentation

End Products

- Programmable Logic Controllers
- Distributed Control Systems
- Motor Starters
- Contactors
- Autonomous Mobile Robots

Part Electrical Specifications

Product	Pricing (\$/Unit)	Compliance	Status	Data Rate (Mbps)	Host Interface	Ethernet Ports	IEEE Standard	Network Base	Temperature Range (°C)	Package Type
NCN26010XFBR 2G		 	Product Preview	10	SPI	1	802.3cg	10BASE-T1S	-40 to 125	TQFP-32
NCN26010XMN TXG	3.3333	 	NEW	10	SPI	1	802.3cg	10BASE-T1S	-40 to 125	QFN32 4x4, 0.4P