SIEMENS

**Technical Specification Sheet**
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# GAMMA
# IP Router N 146/02

## Description

The IP Router N 146/02 implements the KNXnet/IP standard and connects KNX lines to data networks using the Internet Protocol (IP). This device offers concurrent access to the bus line from up to four computers or other data processing equipment.

The physical connection to the KNX network is established through a Bus Terminal block. For connection to the data network (IP using 10Base-T), the device contains an RJ-45 socket.

Using a LAN modem, a KNX installation can be remotely accessed even if there is no direct network connection between a computer and an IP Router N 146/02. LAN modems are readily available for standard telephone, ISDN, or DSL connections.

The IP Router N 146/02 requires additional operating power from only one of the following sources:

- A Power over Ethernet (PoE) network connection according to IEEE 802.3af.
- A second terminal block (white-yellow terminals) connected to a Class 2 power supply AC/DC 24V.
- A Gamma Power Supply Unit N 125/21 (unchoked power, 29 Vdc).

The IP Router N 146/02 creates a logical data connection between KNX bus lines by transmitting telegrams through a data network but keeps the lines electrically separate. This allows each bus line to be run independent of the others.

The IP Router N 146/02 can be used as a line coupler or area coupler in existing or new KNX networks. The device maintains a filter table that determines which bus telegrams are transmitted or blocked, thus reducing the bus load. The filter table is automatically generated by ETS (Engineering Tool Software) during configuration and start-up of the system.


The following features are integrated in the device:

- Fast communication between KNX lines, areas, and systems (KNXnet/IP Routing)
- Filtering and routing of telegrams depending on individual address or group address
- Simple configuration with ETS, local to the job site or remote, leveraging the available wired or wireless IP infrastructure (KNXnet/IP Tunneling)
- Status LEDs showing operation and KNX and IP communication
- Simple connection to other devices or systems connected to the same Internet Protocol (IP) network.

### Application Program

IP Router 001002

## Specifications

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| Network Communication | • Ethernet:<br>10Base-T (10 Mbps)<br>• Supported Internet Protocols:<br>ARP, ICMP, IGMP, UDP/IP, DHCP, AutoIP<br>• KNXnet/IP according to KNX System Specification:<br>Core, Routing, Tunneling, Device Management |
| Rated Voltage | • Bus: 24 Vdc (21 to 30 Vdc)<br>• Auxiliary power supply:<br>– From Power over Ethernet 48 Vdc (acc. to IEEE 802.3af) max. 0.8W<br>– Alternatively from external power supply AC/DC 24V (12 to 24 Vac, 12 to 30 Vdc), max. 1.7W (57 mA @ 24 Vdc) |
| Power Supply | • Bus voltage: 21 to 30 Vdc (Class 2) provided through the bus line<br>• Operating voltage:<br>This product can receive power from only one of the following:<br>– 29 Vdc from the Power Supply N 125/21 (If the N 125/21 is in the same cabinet, this is the preferred solution. If not, one of the following alternates may be used.)<br>– Nominal voltage 48 Vdc from Power over Ethernet according to IEEE 802.3af<br>– From external Class 2 power supply AC/DC 24V nominal, permissible input voltage range: 12 to 24 Vac, 12 to 30 Vdc attached to the AUX terminal block (yellow-white) |
| | **CAUTION:**<br>External power supplies for the IP Router N146/02 should be rated safety extra low voltage (SELV) or NEC Class 2. |
| Power Usage | • From the bus line: max. 10 mA @ 29 Vdc<br>• From the auxiliary power supply: max. 1.7 W (57 mA @ 24 Vdc) |
| Control Elements | One mode button for toggling between normal operating mode and addressing mode |
| Display Elements | • One green LED: device ready (ON)<br>• One yellow LED: Communication on bus line<br>• One green LED: Ethernet Link Signal available (Lk)<br>• One yellow LED: Receiving data from Ethernet (Rx)<br>• One red LED: Transmitting data to Ethernet (Tx)<br>• One red LED: for displaying normal operating mode (OFF) and addressing mode (ON) |
| Connections | • Bus line:<br>– Bus Terminal block (red-black) 20 to 18 AWG solid copper (Ø 0.6 to 0.8 mm single core)<br>– Strip approx. 3/16” (5 mm) of insulation<br>• Ethernet/IP network: RJ-45 socket<br>• Auxiliary power:<br>– Screwless extra low voltage terminal (yellow-white) 20 to 18 AWG solid (∅ 0,6 to 0,8 mm single core)<br>– Strip approx. 3/16” (5 mm) of insulation |

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| Physical Specifications | Housing: plastic<br>Width in N-system dimensions: 2 Module Widths (MW) (1.42” (36 mm)) 1 MW = 0.71” (18 mm)<br>Dimensions (H × W × D): 3.54" ×1.42" × 2.17" (90 × 36 × 55 mm)<br>Weight: Approximately 3.7 oz (105 g)<br>Installation: snap onto 1 mm thick DIN rail that complies with EN 60715-TH35-7.5 |
| Electromagnetic Compatibility | Complies with EN 61000-6-2 and EN 61000-6-3 and EN 50090-2-2 |
| Environmental Conditions | Ambient operating temperature: 23°F to 113°F (-5°C to 45°C)<br>Storage temperature: -13°F to 158°F (-25°C to 70°C)<br>Relative humidity (non-condensing): 5% to 93% |
| Certification | KNX/EIB, CE |
| CE marking | Complies with EMC regulations (residential and commercial/industrial buildings) and low voltage regulations |

## Ordering Information

| Part Number | Description |
|---|---|
| 5WG11461AB02 | IP Router, EIB IP-TP |



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