

# **Open Data Communication in Building Automation, Controls and Building Management - Control Network Protocol - Part 4: IP Communication**

Open Data Communication in Building Automation, Controls and Building Management - Control Network Protocol - Part 4: IP Communication

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 14908-4:2006 sisaldab Euroopa standardi EN 14908-4:2006 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 21.12.2006 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 14908-4:2006 consists of the English text of the European standard EN 14908-4:2006.</p> <p>This document is endorsed on 21.12.2006 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European Standard specifies the transporting of Control Network Protocol (CNP) packets over Internet Protocol (IP) networks using a tunnelling mechanism wherein the CNP packets are encapsulated within the IP packets. It applies to both CNP nodes and CNP routers.</p>	<p><b>Scope:</b></p> <p>This European Standard specifies the transporting of Control Network Protocol (CNP) packets over Internet Protocol (IP) networks using a tunnelling mechanism wherein the CNP packets are encapsulated within the IP packets. It applies to both CNP nodes and CNP routers.</p>
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ICS 35.240.99; 97.100

English Version

**Open Data Communication in Building Automation, Controls and  
Building Management - Control Network Protocol - Part 4: IP  
Communication**

Réseau ouvert de communication de données pour  
l'automatisation, la régulation et la gestion technique du  
bâtiment - Protocole de réseau pour le bâtiment - Partie 4:  
Communication par IP

Firmenneutrale Datenkommunikation für die  
Gebäudeautomation und Gebäudemanagement - Gebäude  
Netzwerk Protokoll - Teil 4: Kommunikation mittels Internet  
Protokoll (IP)

This European Standard was approved by CEN on 11 September 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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## Foreword

This document (EN 14908-4:2006) has been prepared by Technical Committee CEN/TC 247 "Building Automation, Controls and Building Management", the secretariat of which is held by SNV.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2007, and conflicting national standards shall be withdrawn at the latest by May 2007.

This European Standard is part of the standard EN 14908 *Open Data Communication in Building Automation, Controls and Building Management — Control Network Protocol* and consists of the following parts:

Part 1: Protocol Stack

Part 2: Twisted Pair Communication

Part 3: Power Line Channel Specification

Part 4: IP Communication

Part 5: Implementation Guideline

The content of this European Standard covers the data communications used for management, automation/control and field functions. This European Standard is based on the American standard EIA/CEA-852 Tunnelling Component Network Protocols Over Internet Protocol Channels.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## Introduction

This European Standard has been prepared to provide mechanisms through which various vendors of building automation, control and of building management systems may exchange information in a standardised way. It defines communication capabilities.

This European Standard is used by all involved in design, manufacture, engineering, installation and commissioning activities.

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this European Standard may involve the use of a patent concerning this European Standard.

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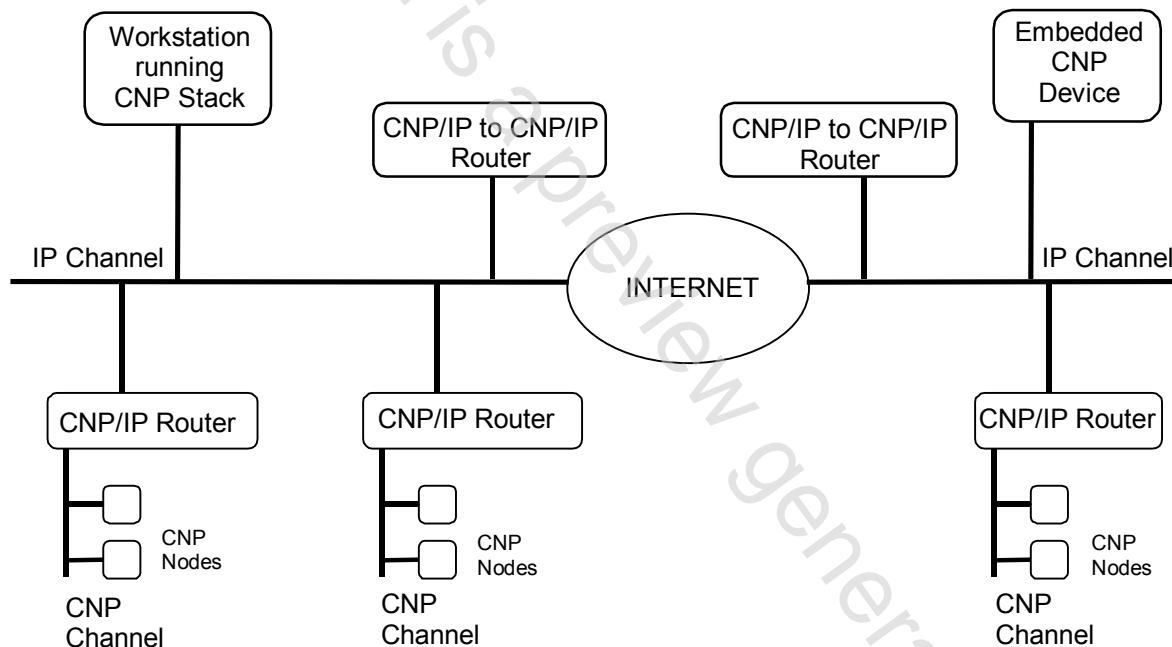
## 1 Scope

This European Standard specifies the transporting of Control Network Protocol (CNP) packets over Internet Protocol (IP) networks using a tunnelling mechanism wherein the CNP packets are encapsulated within the IP packets. It applies to both CNP nodes and CNP routers.

The purpose of this European Standard is to insure interoperability between various CNP devices that wish to use IP networks to communicate using the CNP protocol.

The main body of this European Standard is independent of the CNP protocol being transported over the IP network. The reader is directed to Annex A and Annex B for the normative and informative, respectively, aspects of this specification that are specific to EN 14908-1.

Figure 1 shows a possible configuration of such CNP devices and networks connected to an IP network.



**Figure 1 — Typical CNP/IP application**

Figure 1 depicts two types of CNP devices: CNP nodes and CNP routers. It should be noted that the routers shown can route packets between typical CNP channels (such as twisted pair or power line) and an IP channel or it can route CNP packets between two IP channels. In this European Standard the IP channel will be defined in such a way to allow it to be used like any other CNP channel.

In the above diagram the IP network can be considered to be one or more IP channels. This European Standard covers only how CNP packets are transported over IP channels. It does not cover how CNP packets are routed between standard CNP channels and IP channels. This specification is not intended to cover the lower layers (physical, MAC and link layers) of either standard CNP or IP channels.



## 2 Normative references

Not applicable.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1

#### **Control Network Protocol CNP**

communication standard using a network of nodes (devices) that are capable of computing, sensing, and actuating

NOTE 1 Typically these devices are used for control and telemetry purposes including applications such as HVAC, security, energy management, machine control etc.

NOTE 2 These devices are typically not used for data processing or general purpose computing purposes.

### 3.2

#### **Tunneling**

encapsulation of one protocol's packet within the payload of another protocol's packets

### 3.3

#### **channel**

common communications transport mechanism that a specific collection of CNP devices share and communicate over without the use of a router

NOTE 1 Channels are used to transport CNP packets below the link layer of the CNP protocol stack.

NOTE 2 Typically this refers to some type of physical media such as power line, RF, or twisted pair, but in the case of IP networks this channel is not physical, but a protocol tunnel.

### 3.4

#### **CNP device**

device that uses the CNP protocol to communicate with other CNP devices

NOTE Specifically a CNP/IP device is a CNP device that communicates with other CNP devices over an IP channel.

### 3.5

#### **CNP router**

special type of CNP device that routes CNP protocol packets between two or more channels

NOTE Specifically a CNP/IP router is a CNP router in which at least one of the channels it routes packets over is an IP channel.

### 3.6

#### **CNP node**

special type of CNP device that can send or receive CNP protocol packets, but does not route them between channels

NOTE 1 Specifically a CNP/IP node is a CNP node in which at least one of the channels it sends and receives packets over is an IP channel.

NOTE 2 All CNP devices are either routers, nodes or both.