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**Utrustning för fjärrstyrning –
Del 6: Protokoll för fjärrstyrning kompatibla med ISO-standard och
rekommendationer från ITU-T –
Sektion 601: Funktionsprofil för uppkopplingsorienterade
transporttjänster för ett användarsystem anslutet till ett
paketförmedlande datanät via fast förbindelse**

Telecontrol equipment and systems –

Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations –

*Section 601: Functional Profile for providing the Connection-Oriented Transport Service in an
End System connected via permanent access to a Packet Switched Data Network*

Som svensk standard gäller europastandarden EN 60870-6-601:1995. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60870-6-601:1995.

Nationellt förord

Europastandarden EN 60870-6-601:1995^{*)}

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60870-6-601, First edition, 1994 - Telecontrol equipment and systems - Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations - Section 601: Functional Profile for providing the Connection-Oriented Transport Service in an End System connected via permanent access to a Packet Switched Data Network**

utarbetad inom International Electrotechnical Commission, IEC.

^{*)} EN 60870-6-601:1995 ikraftsattes 1996-05-31 som SS-EN 60870-6-601 genom offentliggörande, d v s utan utgivning av något svenskt dokument.

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Descriptors: Telecontrol, data transmission, protocol, functional profile, Open Systems Interconnection, connection-oriented transmission, service

English version

Telecontrol equipment and systems
Part 6: Telecontrol protocols compatible with ISO standards
and ITU-T recommendations
Section 601: Functional Profile for providing the Connection-Oriented
Transport Service in End System connected via permanent access to
a Packet Switched Data Network
(IEC 870-6-601:1994)

Matériels et systèmes de téléconduite
Partie 6: Protocoles de téléconduite
compatibles avec les normes ISO et les
recommandations de l'UIT-T
Section 601: Profil fonctionnel pour
fournir le service de transport en mode
connexion dans un système d'extrémité
connecté par un accès permanent à un
réseau de commutation de paquets
(CEI 870-6-601:1994)

Fernwirkrichtungen und -systeme
Teil 6: Fernwirkprotokolle, die mit
ISO-Normen und ITU-T-Empfehlungen
kompatibel sind
Hauptabschnitt 601: Funktionsprofil für
den verbindungsorientierten
Transportdienst in einem Endsystem mit
Festanschluß an ein paketvermittelndes
Datennetz
(IEC 870-6-601:1994)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of document 57(CO)74, future edition 1 of IEC 870-6-601, prepared by IEC TC 57, Power system control and associated communications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60870-6-601 on 1995-02-15.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 1996-02-15
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 1996-02-15

Endorsement notice

The text of the International Standard IEC 870-6-601:1994 was approved by CENELEC as a European Standard without any modification.

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INTRODUCTION

This section of IEC 870-6 defines functional profiles to be used in telecommunication networks for electric power systems. It is largely based on existing ISO/IEC International Standards and International Standardized Profiles (ISP).

The notion of Functional Profile is fundamental in the organization of IEC 870-6. A description of Functional Profiles, their classification scheme, and the manner of defining them are laid down in Part 6, Section 1.

The present section is a Transport-class Profile providing the COnnexion-mode Transport Service (COTS) over the COnnexion-mode Network Service (CONS) for the specific case of permanent access to a Packet Switched Data Network (PSDN).

ISO defined a multi-part ISP for specification of COTS over CONS or CLNS profiles: the ISP 10609.

In the ISO taxonomy, it corresponds to Transport Profiles TB1111 for analog permanent access and TB1121 for digital permanent access to a PSDN.

It makes frequent reference to the International Standardized Profiles ISO/IEC ISP 10609-1, ISO/IEC ISP 10609-5 and ISO/IEC ISP 10609-9.

TELECONTROL EQUIPMENT AND SYSTEMS –

Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Section 601: Functional Profile for providing the Connection-Oriented Transport Service in an End System connected via permanent access to a Packet Switched Data Network

1 Scope

This Functional Profile (FP) defines the provision of the OSI Connection-mode Transport Service between an End System ("The Reference End System") which uses a Permanent Analog or Digital Circuit to access a Packet Switched Data Network (PSDN) and another End System ("The Compatible End System") which is accessible, by permanent or switched methods, either directly from the same PSDN, or indirectly through the provided OSI Connection-mode Network Service.

This FP also defines the provision of the OSI Connection-mode Network Service between the Reference End System and the Compatible End System using the X.25 subnetwork procedures to a PSDN.

This FP is applicable to environments which support the OSI Network Service.

In the ISO taxonomy four options are defined as a function of the transport protocol classes operated:

- Group TB: includes transport protocol classes 0, 2 and 4,
- Group TC: includes transport protocol classes 0 and 2,
- Group TD: includes transport protocol class 0,
- Group TE: includes transport protocol class 2.

Implementation of the option TD (class 0 only) requires that the End System does not operate any of the multiplexing classes (class 2, 3, or 4) of the Transport Protocol procedures. Such End Systems will only interwork with End Systems that also implement class 0 Transport Protocol procedures. Implementation of the other options (groups TB, TC, TE) in one End System, enables that End System to interwork with any End System conforming to ISO 8073.

This FP recommends the implementation of classes 0, 2 and 4 in End Systems. In the ISO taxonomy such End Systems with permanent access to a PSDN are referenced with profiles TB1111 (for analog access) or TB1121 (for digital access).

NOTE – The FP specifies a set of protocols to be used in the Reference End System in order to provide the function defined above. It does not specify total End System capability. The requirements placed on an End System in this section of IEC 870-6 are solely those necessary for operation of the protocol set specified.

The format of this section is in conjunction with one of the ISO/IEC ISPs.

These ISPs are defined in a multi-part way. For example, to define the profiles TB1111 and TB1121, the present section refers to the three different ISO/IEC ISPs, listed in clause 2.

When applicable the present section follows ISO/IEC ISP 10609-1, ISO/IEC ISP 10609-5 and ISO/IEC ISP 10609-9. The present section defines some complementary specifications to ISP 10609. Those specifications mainly concern the priority management and the transport class negotiation.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this section of IEC 870-6. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this section of IEC 870-6 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

57/201/DIS, *Telecontrol equipment and systems – Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Section 2: Use of base standards – Layers 1 to 4* (future IEC 870-6-2)

ISO 7776: 1986, *Information processing systems – Data communications – High-level data link control procedures – Description of the X.25 LAPB-compatible DTE data link procedures*

ISO 8072: 1986, *Information processing systems – Open Systems Interconnection – Transport service definition*

ISO/IEC 8073: 1992, *Information technology – Telecommunications and information exchange between systems – Open Systems Interconnection – Protocol for providing the connection-mode transport service*

ISO/IEC 8208: 1990, *Information technology – Data communications – X.25 Packet Layer Protocol for Data Terminal Equipment*
Amendment 3: 1991, *Conformance requirements*

ISO 8348: 1993, *Information technology – Open Systems Interconnection – Network Service Definition*

ISO/IEC 8878: 1992, *Information technology – Telecommunications and information exchange between systems – Use of X.25 to provide the OSI Connection-mode Network Service*

ITU-T X.21: 1988, *Interface between data terminal equipment (DTE) and data-terminating equipment (DCE) for synchronous operation on public data networks (PDNs)*

ITU-T X.21 bis: 1988, *Use on PDNs of DTE which is designed for interfacing to synchronous V-series modems*

ITU-T X.25: 1988, *Interface between DTE and DCE for terminals operating in the packet mode and connected to public data networks by dedicated circuit*

ISO DIS 10732: 1992, *Information technology – Telecommunications and information exchange between systems – Use of X.25 Packet Layer Protocol to provide the OSI Connection-mode Network Service over the telephone network*

ISO DIS 10588: 1992, *Information technology – Telecommunications and information exchange between systems – Use of X.25 Packet Layer Protocol in conjunction with X.21/X.21 bis to provide the OSI Connection-mode Network Service*

ISO/IEC TR 10029: 1989, *Information technology – Telecommunications and information exchange between systems – Operation of an X.25 interworking unit*

ISO/IEC ISP 10609-1: 1992, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 1: Subnetwork-type independent requirements for Group TB*

ISO/IEC ISP 10609-5: 1992, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 5: Definition of profiles TB1111/TB1121*

ISO/IEC ISP 10609-9: 1992, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 9: Subnetwork-type dependent requirements for Network Layer, Data Link Layer and Physical Layer concerning permanent access to a packet switched data network using virtual calls*