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Telecontrol equipment and systems –

Part 6-602: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – TASE transport profiles

Matériels et systèmes de téléconduite –

Partie 6-602: Protocoles de téléconduite compatibles avec les normes ISO et les recommandations de l'UIT-T – Profils TASE de transport

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TELECONTROL EQUIPMENT AND SYSTEMS –

Part 6-602: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – TASE transport profiles

FOREWORD

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IEC 60870-6-602, which is a technical specification, has been prepared by IEC technical committee 57: Power system control and associated communications.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
57/466/CDV	57/502/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

- transformed into an International Standard;
- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

TELECONTROL EQUIPMENT AND SYSTEMS –

Part 6-602: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – TASE transport profiles

1 Scope

This part of IEC 60870, which is a technical specification, describes the transport profiles for the IEC 60870-6 series over WAN with reference to international standardized profiles (ISPs) used by distributed SCADA/EMS applications in control centres, power plants and substations. The transport profiles use virtually any standard or *de facto* standard (including TCP/IP) connection-mode and connectionless-mode network services over any type of transmission media.

These profiles are part of the telecontrol communication architecture (TCA).

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this technical specification. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this technical specification are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

2.1 General Standards

ISO/IEC 8072:1996, *Information technology – Open systems interconnection – Transport service definition*

ISO/IEC 8073:1997, *Information technology – Open Systems Interconnection – Protocol for providing the connection-mode transport service*

ISO/IEC 8348:1996, *Information technology – Open Systems Interconnection – Network Service Definition*

ISO/IEC 8473 (all parts), *Information technology – Protocol for providing the connectionless-mode network service*

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

ISO/IEC TR 8802 (all parts), *Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements*

ISO/IEC 9574:1992, *Information technology – Provision of the OSI connection-mode network service by packet mode terminal equipment to an integrated services digital network*

ISO/IEC TR 9577:1999, *Information technology – Protocol identification in the network layer*

ITU-T Recommendation X.121:2000, *International numbering plan for public data networks*

2.2 International standardized profiles

This subclause lists all current ISPs which may be implemented in telecontrol systems. For SCADA/EMS the TASE profiles IEC 60870-6-701 (TASE.1) and IEC 60870-6-702 (TASE.2) apply.

IEC 60870-6-501:1995, *Telecontrol equipment and systems – Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Section 501: TASE.1 Service definitions*

IEC 60870-6-502:1995, *Telecontrol equipment and systems – Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Section 502: TASE.1 Protocol definitions*

IEC 60870-6-503:1997, *Telecontrol equipment and systems – Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Section 503: TASE.2 Services and protocol*

IEC 60870-6-601:1994, *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*

IEC 60870-6-701:1998, *Telecontrol equipment and systems – Part 6-701: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Functional profile for providing the TASE.1 application service in end systems*

IEC 60870-6-702:1998, *Telecontrol equipment and systems – Part 6-702: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Functional profile for providing the TASE.2 application service in end systems*

IEC 60870-6-802:1997, *Telecontrol equipment and systems – Part 6: Telecontrol protocols compatible with ISO standards and ITU-T recommendations – Section 802: TASE.2 Object models*

2.2.1 Transport profiles

2.2.1.1 TA-profiles: CO transport over CL network services (CLNP)

ISO/IEC ISP 10608-1:1992, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 1: General overview and subnetwork-independent requirements*

ISO/IEC ISP 10608-2:1992, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 2: TA51 profile including subnetwork-dependent requirements for CSMA/CD Local Area Networks*

ISO/IEC ISP 10608-4:1994, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode* Network Service – *Part 4: Definition of profile TA53, operation over a Token Ring LAN subnetwork*

ISO/IEC ISP 10608-5:1992, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 5: TA1111/TA1121 profiles including subnetwork-dependent requirements for X.25 packet-switched data networks using virtual calls*

ISO/IEC ISP 10608-6:1995, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 6: Definition of profile TA54, operation over an FDDI LAN subnetwork*

ISO/IEC ISP 10608-12:1996, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 12: MAC sublayer and physical layer dependent requirements for a CSMA/CD LAN subnetwork*

ISO/IEC ISP 10608-13:1994, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 13: MAC sublayer and physical layer dependent requirements for a token ring LAN subnetwork*

ISO/IEC ISP 10608-14:1995, *Information technology – International Standardized Profile TAnnnn – Connection-mode Transport Service over Connectionless-mode Network Service – Part 14: MAC, PHY and PMD sublayer dependent and Station management requirements over an FDDI LAN subnetwork*

2.2.1.2 TB/C/D/E-profiles: CO transport over CO network services (ITU X.25)

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 [virtual call]*

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*

ISO/IEC ISP 10609-10:1994, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 10: LAN subnetwork-dependent, media independent requirements*

ISO/IEC ISP 10609-11:1994, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 11: CSMA/CD subnetwork-dependent media-dependent requirements*

ISO/IEC ISP 10609-12:1994, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 12: Definition of profile TC51, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a CSMA/CD LAN*

ISO/IEC ISP 10609-14:1994, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 14: Definition of profile TC53, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to a token ring LAN*

ISO/IEC ISP 10609-15:1996, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 15: Definition of profile TC54, provision of the OSI connection-mode Transport Service using the OSI connection-mode Network Service in an End System attached to an FDDI LAN*

ISO/IEC ISP 10609-20:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 20: Overview of the generalized multi-part ISP structure for TC and TD group profiles for OSI usage of ISDN*

ISO/IEC ISP 10609-21:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 21: Subnetwork-type dependent requirements for network layer and data link layer for ISDN B-channel X.25 DTE to DTE operation*

ISO/IEC ISP 10609-22:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 22: Subnetwork type dependent requirements for network layer and data link layer for ISDN B-channel X.25 DTE to DCE operation*

ISO/IEC ISP 10609-23:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 23: Subnetwork-type dependent requirements for network layer and data link layer for data transfer concerning a packet switched mode integrated services digital network using virtual calls: B-channel access case*

ISO/IEC ISP 10609-24:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 24: Subnetwork-type dependent requirements for network layer and data link layer for data transfer concerning a packet switched mode integrated services digital network using virtual calls: D-channel access case*

ISO/IEC ISP 10609-25:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 25: Subnetwork-type dependent requirements for Q.931 circuit-switched operation*

ISO/IEC ISP 10609-26:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 26: Subnetwork-type dependent requirements for network layer for a call control procedures concerning the outgoing call of a packet switched mode Integrated services digital network in case b using virtual calls*

ISO/IEC ISP 10609-27:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 27: Subnetwork-type dependent requirements for network layer for a call control procedures concerning the incoming call of a packet switched mode Integrated services digital network in case b using virtual calls*

ISO/IEC ISP 10609-28:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 28: Subnetwork-type dependent requirements for data link layer for end systems attached to an ISDN subnetwork*

ISO/IEC ISP 10609-30:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 30: Definition of profile TC1131*

ISO/IEC ISP 10609-31:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 31: Definition of profile TC1231*

ISO/IEC ISP 10609-32:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 32: Definition of profile TC4111*

ISO/IEC ISP 10609-33:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 33: Definition of profile TC4211*

ISO/IEC ISP 10609-34:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 34: Definition of profile TC43111*

ISO/IEC ISP 10609-35:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 35: Definition of profile TC43112*

ISO/IEC ISP 10609-36:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 36: Definition of profile TC43211*

ISO/IEC ISP 10609-37:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 37: Definition of profile TC43212*

ISO/IEC ISP 10609-38:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 38: Definition of profile TC4331*

ISO/IEC ISP 10609-40:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 40: Definition of profile TD1131*

ISO/IEC ISP 10609-41:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 41: Definition of profile TD1231*

ISO/IEC ISP 10609-42:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 42: Definition of profile TD4111*

ISO/IEC ISP 10609-43:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 43: Definition of profile TD4211*

ISO/IEC ISP 10609-44:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 44: Definition of profile TD43111*

ISO/IEC ISP 10609-45:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 45: Definition of profile TD43112*

ISO/IEC ISP 10609-46:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 46: Definition of profile TD43211*

ISO/IEC ISP 10609-47:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 47: Definition of profile TD43212*

ISO/IEC ISP 10609-48:1995, *Information technology – International Standardized Profiles TB, TC, TD and TE – Connection-mode Transport Service over connection-mode Network Service – Part 48: Definition of profile TD4331*