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SERIES V: DATA COMMUNICATION OVER THE
TELEPHONE NETWORK

Interfaces and voiceband modems

**List of definitions for interchange circuits
between data terminal equipment (DTE) and
data circuit-terminating equipment (DCE)**

ITU-T Recommendation V.24

(Formerly CCITT Recommendation)



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ITU-T V-SERIES RECOMMENDATIONS

DATA COMMUNICATION OVER THE TELEPHONE NETWORK

General	V.1–V.9
Interfaces and voiceband modems	V.10–V.34
Wideband modems	V.35–V.39
Error control	V.40–V.49
Transmission quality and maintenance	V.50–V.59
Simultaneous transmission of data and other signals	V.60–V.99
Interworking with other networks	V.100–V.199
Interface layer specifications for data communication	V.200–V.249
Control procedures	V.250–V.299
Modems on digital circuits	V.300–V.399

For further details, please refer to ITU-T List of Recommendations.

ITU-T RECOMMENDATION V.24

**LIST OF DEFINITIONS FOR INTERCHANGE CIRCUITS
BETWEEN DATA TERMINAL EQUIPMENT (DTE) AND
DATA CIRCUIT-TERMINATING EQUIPMENT (DCE)****Summary**

This Recommendation applies to the interconnecting circuits being called interchange circuits at the interface between DTE and DCE for the transfer of binary data, control and timing signals as appropriate. This Recommendation also applies to both sides of separate intermediate equipment, which may be inserted between these two classes of equipment.

Source

ITU-T Recommendation V.24 was revised by ITU-T Study Group 16 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on 17 February 2000.

FOREWORD

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The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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CONTENTS

	Page
1 Scope	1
1.1 Range of application.....	1
1.2 Applicable electrical characteristics	2
1.3 Applicable mechanical characteristics.....	2
1.4 Allocation of functionalities	2
2 Line of demarcation.....	2
3 Definitions of interchange circuits	2
3.1 Circuit 102 – Signal ground or common return.....	4
3.2 Circuit 102a – DTE common return	4
3.3 Circuit 102b – DCE common return	4
3.4 Circuit 102c – Common return.....	4
3.5 Circuit 103 – Transmitted data	4
3.6 Circuit 104 – Received data.....	5
3.7 Circuit 105 – Request to send.....	5
3.8 Circuit 106 – Ready for sending.....	5
3.9 Circuit 107 – Data set ready	5
3.10 Circuit 108/1 – Connect data set to line	6
3.11 Circuit 108/2 – Data terminal ready	6
3.12 Circuit 109 – Data channel received line signal detector	7
3.13 Circuit 111 – Data signalling rate selector (DTE source)	7
3.14 Circuit 112 – Data signalling rate selector (DCE source)	7
3.15 Circuit 113 – Transmitter signal element timing (DTE source).....	7
3.16 Circuit 114 – Transmitter signal element timing (DCE source).....	8
3.17 Circuit 115 – Receiver signal element timing (DCE source)	8
3.18 Circuit 116/1 – Back-up switching in direct mode.....	8
3.19 Circuit 116/2 – Back-up switching in authorized mode	9
3.20 Circuit 117 – Standby indicator.....	9
3.21 Circuit 118 – Transmitted backward channel data	9
3.22 Circuit 119 – Received backward channel data.....	9
3.23 Circuit 120 – Transmit backward channel line signal	9
3.24 Circuit 121 – Backward channel ready.....	9
3.25 Circuit 122 – Backward channel received line signal detector	10
3.26 Circuit 125 – Calling indicator	10
3.27 Circuit 126 – Select transmit frequency	10



Documents

Document Sharing Hub

3.28	Circuit 128 – Receiver signal element timing (DTE source)	10
3.29	Circuit 131 – Received character timing (DCE source)	10
3.30	Circuit 133 – Ready for receiving	11
3.31	Circuit 134 – Received data present	11
3.32	Circuit 135 – Received energy present	11
3.33	Circuit 137 – Transmitted character timing (DTE source)	11
3.34	Circuit 138 – Transmitted character timing (DCE source)	12
3.35	Circuit 140 – Loopback/Maintenance test	12
3.36	Circuit 141 – Local loopback	12
3.37	Circuit 142 – Test indicator	13
4	Operational requirements	13
4.1	Data circuits and timing circuits	13
4.1.1	Data circuits	13
4.1.2	Timing circuits	13
4.2	Control and indication circuits	14
4.2.1	Operation of circuits 107, 108/1 and 108/2	14
4.2.2	Circuit 125 – Calling indicator	15
4.2.3	Usage of circuit 126	15
4.2.4	Circuit 140 – Loopback/Maintenance Test	15
4.3	Miscellaneous	15
4.3.1	Interrelationship of circuits 103, 105 and 106	15
4.3.2	Idle periods	16
4.3.3	Clamping	16
4.4	Circuit failures (electrical)	17
4.5	Provision of interchange circuits in DCEs and DTEs	17
4.6	Data flow control	17
4.7	Power-up considerations	17
5	References	17

Recommendation V.24

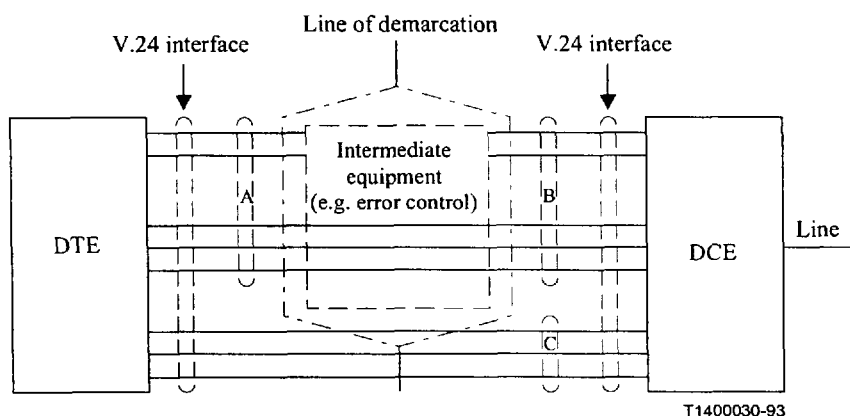
LIST OF DEFINITIONS FOR INTERCHANGE CIRCUITS BETWEEN DATA TERMINAL EQUIPMENT (DTE) AND DATA CIRCUIT-TERMINATING EQUIPMENT (DCE)

(Geneva, 1964, amended at Mar del Plata, 1968, Geneva, 1972, 1976 and 1980,
Malaga-Torremolinos, 1984, Melbourne, 1988, Helsinki, 1993, Geneva, 1996 and 2000)

1 Scope

1.1 Range of application

This Recommendation applies to the interconnecting circuits being called interchange circuits at the interface between DTE and DCE for the transfer of binary data, control and timing signals as appropriate. This Recommendation also applies to both sides of separate intermediate equipment, which may be inserted between these two classes of equipment (see Figure 1).



NOTE – Without intermediate equipment, the selections A and B are identical.
Selection C may be a selection specifically for automatic calling.

Figure 1/V24 – Illustration of general layout of equipment

The range of interchange circuits defined in this Recommendation is applicable, for example:

- a) to synchronous and asynchronous data communications;
- b) to data transmission on leased line service, either 2-wire or 4-wire, either point-to-point or multipoint operation;
- c) to data transmission on switched network service, either 2-wire or 4-wire;

A DTE/DCE interface conforming to this Recommendation may also be used for attachment to a Public Data Network (PDN). For these cases, additional information on interchange circuit implementation and operational requirements may be found in Recommendations X.20 *bis* and X.21 *bis*.

In any type of practical equipment a selection will be made from the range of interchange circuits defined in this Recommendation, as appropriate.

The actual interchange circuits to be used in a particular DCE are those indicated in the appropriate Recommendation.

The required interchange circuits specified in the DCE Recommendations which make reference to this Recommendation apply only to the DCE side of the interface. Only those circuits necessary to assure satisfactory operation of the application the DTE is intending to support need be controlled or monitored by the DTE (see 4.5 for proper handling of unimplemented circuits).

The usage and operational requirements of certain interchange circuits and the interaction between them are specified in clause 4. For proper operation of the DCE it is important that the guidelines in clause 4 be observed.

1.2 Applicable electrical characteristics

Electrical characteristics for interchange circuits are specified in Recommendations V.10, V.11, V.12, V.28, V.31 and V.31 *bis*.

1.3 Applicable mechanical characteristics

For mechanical characteristics of the interface, refer to ISO/IEC 2110 (25-pole), ISO/IEC 11569 (26-pole), ISO/IEC 13575 (50-pole) or ISO/IEC 4902 (37-pole) as appropriate.

1.4 Allocation of functionalities

The DCE may include signal converters, timing generators, pulse regenerators, and control circuitry, together with equipment to provide functions such as error control, automatic calling and automatic answering. Some of these functions may be implemented in separate intermediate equipment or in the DTE.

2 Line of demarcation

The interface between DTE and DCE is located at a connector, which is the interchange point between these two classes of equipment.

The interface connector will not necessarily be physically attached to the DCE and may be mounted in a fixed position near the DTE.

An interconnecting cable or cables will normally be provided with the DTE. It is recommended to keep the cables as short as possible. Their lengths should be limited by the load capacitance and other electrical characteristics specified in the relevant Recommendation on electrical characteristics (see 1.2).

3 Definitions of interchange circuits

A list of these interchange circuits is presented in Table 1.

NOTE – Compared to earlier versions of this Recommendation, Table 1 and the definitions below summarize fewer interchange circuits, and some circuit numbers are void. Interchange circuits for which no practical application has become known or whose application has ceased have been removed, e.g. the 200-series of interchange circuits for parallel automatic calling in accordance with earlier versions of Recommendation V.25 and interchange circuits relevant for modems employing parallel data transmission in accordance with former Recommendation V.20.