
**Information technology — Automatic
identification and data capture
techniques — Bar code symbology
specifications — Code 39**

*Technologies de l'information — Techniques automatiques d'identification
et de capture des données — Spécifications des symbologies des codes à
barres — Code 39*



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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

International Standard ISO/IEC 16388 was prepared by BSI and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

Annexes A to D of this International Standard are for information only.

Introduction

The technology of bar coding is based on the recognition of patterns encoded in bars and spaces of defined dimensions. There is a number of methods of encoding information in bar code form, known as symbologies, and the rules defining the translation of characters into bar and space patterns and other essential features are known as the symbology specification. Code 39 is one such symbology.

Previously, symbology specifications have been developed and published by a number of organizations, resulting in certain instances in conflicting requirements for certain symbologies.

Manufacturers of bar code equipment and users of bar code technology require publicly available standard symbology specifications to which they can refer when developing equipment and application standards.

Information technology — Automatic identification and data capture techniques — Bar code symbology specifications — Code 39

1 Scope

This International Standard specifies the requirements for the bar code symbology known as Code 39; it specifies Code 39 symbology characteristics, data character encodation, dimensions, tolerances, decoding algorithms and application-defined parameters.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard 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 ISO and IEC maintain registers of currently valid International Standards.

ISO 646:1983, *Information technology — ISO 7-bit coded character set for information interchange*.

ISO 7064:1983, *Data processing — Check character systems*.

ISO/IEC 15416, *Automatic identification and data capture techniques — Bar code print quality test specification — Linear symbols*.

ISO/IEC 15424, *Automatic identification and data capture techniques — Data carrier/symbology identifiers*.

EN 1556:1997, *Bar Coding — Terminology*.

3 Definitions

For the purposes of this International Standard, the definitions given in EN 1556 apply.

4 Requirements

4.1 Symbology characteristics

The characteristics of Code 39 are:

- a) Encodable character set:
 - 1) Full alphanumeric A to Z and 0 to 9 (ASCII characters 65 to 90 and 48 to 57 inclusive, in accordance with ISO 646);
 - 2) special characters: space \$ % + - . / (ASCII characters 32, 36, 37, 43, 45, 46 and 47 respectively, in accordance with ISO 646);
 - 3) start/stop character;
- b) Code type: discrete;

- c) Elements per symbol character: 9, of which 3 wide and 6 narrow, comprising 5 bars and 4 spaces;
- d) Character self-checking: yes;
- e) Data string length encodable: variable;
- f) Bidirectionally decodable: yes;
- g) Symbol check character: one, optional (see annex A);
- h) Symbol character density: 13 to 16 modules per symbol character, inclusive of minimum intercharacter gap, depending on wide/narrow ratio;
- i) Non-data overhead: equivalent to 2 symbol characters.

4.2 Symbol structure

As illustrated in Figure 1, Code 39 symbols shall comprise:

- a) leading quiet zone;
- b) start character;
- c) one or more symbol characters representing data (including symbol check character, if present);
- d) stop character;
- e) trailing quiet zone.

A space, the intercharacter gap, shall separate characters within the symbol.

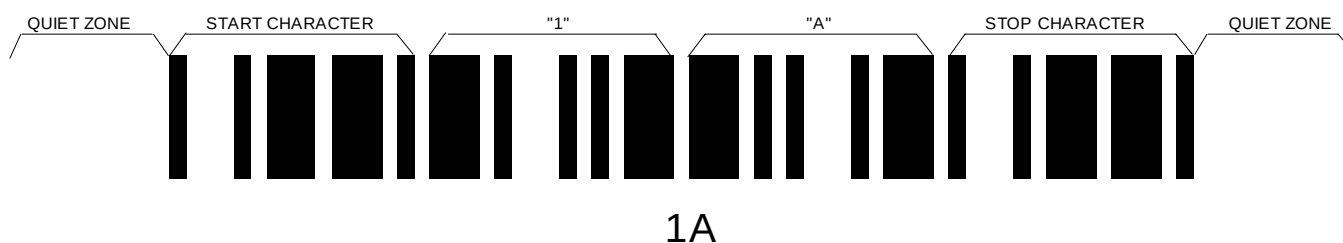


Figure 1 — Code 39 symbol

4.3 Character encodation

4.3.1 Symbol character encodation

Table 1 defines all the Code 39 character assignments.