

Code reader for patient safety



Medicines are safety-critical products – counterfeit products with ineffective or incorrectly dosed active ingredients can cause considerable harm to patients. A new EU directive therefore stipulates that all prescription-only medicines are to be given a unique identifier by 2017. High-capacity Vision code readers such as VISOR® V20 from SensoPart Industriesensorik ensure that the codes are correctly printed and are of good readable quality.

Today, most counterfeit medicines are sold via the Internet and mainly concern expensive lifestyle product such as the famous blue pills. Whilst cases of counterfeiting are indeed rare in the legal supply chain, from pharmaceutical companies to wholesalers and pharmacies, the branch does, however, fear an increase over coming years. To exclude counterfeits, an identification system called “securPharm” was developed in anticipation of the EU anti-counterfeit directive, which will come into effect in 2017. It was tested in a successful pilot project which was completed in May 2013. The system is now to be introduced worldwide by 2017.

Fig. 1: The new unique identifier on pharmaceutical packaging, according to the securPharm system, consists of clear text and an additional data matrix code. To guarantee good readability, the print quality of the identifier is checked with the aid of the Vision code reader VISOR® V20 immediately after its application.

With securPharm, medicines are given a unique identifier during production. This consists of an individual product code, serial number, batch number and expiry date. This is printed on the outer packaging and registered in a manufacturer database. The pharmacist checks that the product in question has been properly registered before dispensing it to the patient (so-called end-to-end verification). In the event of irregularities, the product can be withdrawn from sale and checked before it reaches the patient.

To automate the described verification process, a standardised,

machine-readable code must be printed on the packaging. This is the only way to guarantee straightforward checks anywhere along the supply chain - in the manufacturer's goods out



Fig. 2: Each pharmaceutical packaging is rendered unique by the application of a unique identifier during production. Good readability is essential for later code checks.

department, by the wholesaler and finally by the pharmacist. In addition to clear text, the identifier also includes a two-dimensional data matrix code (DMC) which can be read by both industrial code readers and a scanner in the pharmacy (fig. 2).

Medicines are worthless if the code cannot be read.

The efficiency of the system relies on the readability of the DMC. If a code is not readable, the product in question must be withdrawn as it could be a counterfeit. A misprinted batch, therefore, represents a considerable financial loss for the manufacturer. To guarantee permanent reliable readability, codes are checked by an industrial code reader whilst still on the packaging line – immediately after application of the identifier:



Fig. 3: Typical code errors (e.g. too faint or distorted) can be detected using standardised quality parameters so that the source of error can be eliminated. The VISOR® code reader from SensoPart offers the option of exporting the quality parameters for each code that has been read, so that hard-to-read codes are immediately detected.

The code reader must do more than just read the code, it must also judge its quality; this is done with the aid of so-called standardised quality parameters (fig. 3).

Use of a code reader which can analyse these parameters enables the continuous monitoring of code quality and the early detection of a possible deterioration over time. If the reading quality falls below a defined threshold, this is signalled, as other

important information is also printed on the packaging in legible clear text, in addition to the code, e.g. expiry date (fig. 4).

The Vision code reader VISOR® V20 from SensoPart is able to



Fig. 4a+b: The VISOR® V20 code reader from SensoPart reads both DMC and clear text and can also export quality parameters. All elements are recorded and analysed in a reading process.

analyse both DMC and clear text. A high-resolution image chip (1.3 megapixels) enables extremely precise analysis of the identifier and also reliably detects small defects in the print image. It is also possible to control the identifier on moving objects. Up to 50 codes can be read per second, depending on the application. This makes the Vision code reader VISOR® V20 ideal for fast packaging processes.

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Additional information

Data matrix codes



Data matrix codes (DMC) are frequently used in industrial sectors which require end-to-end traceability of products and parts, such as the automotive or pharmaceutical industry. In comparison to one-dimensional bar codes, DMC can pack a large quantity of information into a very small space. They also offer high data security (through redundant coding) and good readability from any angle (through clear marking of the reading direction) and with low contrast.

DMC exist in different development stages which are classified according to the error checking and correction algorithm (ECC) used. The most recent and most reliable version is the ECC 200. The square or rectangular shaped code can vary in size and the symbol elements are square. The code and its elements are defined in the international standard ISO/IEC 16022.

The data matrix system enables the encoding of up to 2334 ASCII characters (7 bit) or 1558 ASCII characters (extended character set, 8 bit) or 3116 digits. Thanks to Reed-Solomon error correction coding, reconstruction of data content is even possible when up to 25 % of the code is covered or destroyed.

SensoPart Industriesensorik GmbH

The German sensor manufacturer SensoPart, based in the Black Forest region near Freiburg since 2001, develops, produces and sells sensors for industrial applications. The main focus is on optoelectronic sensors, particularly laser sensors, which are used in so many industrial applications, and high-performance vision sensors for the detection of objects, colours or data matrix codes.

The past years have been marked by a strong growth in turnover and the regular launch of new, innovative products. SensoPart has received several distinctions for its work, for example the Dr. Rudolf-Eberle Prize, 1st place in the Baden-Württemberg Prize for the Promotion of Young Companies, and has been awarded the German Sensor Application Prize several times.

Further information can be found online under: <http://www.sensopart.com>