

# **QS-Beleg**

**Data Capture Software**

## **Product Information**

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**Latest information on the Internet:**

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**Version 4.0  
for Windows NT  
Windows 200x  
Windows ME  
Windows XP**

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## Overview

Form reading and processing has existed for a long time. It is used mainly in dealing with large amounts of data. Here special hardware and a customized software solution used to be necessary. However, the decline in prices for hardware and the increasing capability of PCs, particularly in graphics, has resulted in a new price frames for form reading and processing.

### This is where the QualitySoft – system comes in

Using newly developed programs with the comfortable Windows user interfaces and **using scanners** a new interesting alternative or addition for manual data registration is provided.

Your forms are scanned and stored as images. Fields of interest are...

... defined once only as mask in the graphic editor. After that the fields...

...are recognized according to the type. You receive complete records for your database or application.

The image shows a scanned form with the following fields:
 

- Mitarbeiter: MUSTERMANN
- Mitarbeiter-Nr.: 123456
- Beleg-Nr.: 5221
- Tag: 0-9 grid with 'X' at 01
- Monat: 1-6 grid with 'X' at 4
- Zeit (Std.): 0-30 grid with 'X' at 10
- Jahr: 1993-1997 grid with 'X' at 1994
- Wetter: Sonntag, heiter, bewölkt, Niederschlag (radio buttons)

The image shows the graphic editor mask for the form, with checkboxes for:
 

- Beleg-Nr.
- Tag
- Monat
- Zeit (Std.)
- Jahr
- Wetter (Sonntag, heiter, bewölkt, Niederschlag)

SCHNEIDER	12.10.33	3	4
SCHMIDT	10.08.44	1	7
LEHMANN	13.02.63	5	6
FELDMANN	01.09.82	3	2
KRUG	15.11.58	1	2
MÜLLER	21.08.75	3	4
HEINRICH	17.04.62	1	7
WEINSTEIN	30.06.39	3	5
BRAMER	09.02.81	0	1
ARMSTRONG	04.07.51	1	5

### QS-Beleg offers a cost-saving automatic data registration and processing.

**QS-Beleg** is particularly useful for tasks where data is registered in a decentralize manner. Typical areas of application are recording time, market research, customer requests and ordering, quality control and others. In addition to marking machines, handwritten characters can be recognized. The team at QualitySoft can complete form processing organization and develop the form for you. We're always happy to provide you with advice for the best solutions.

Handling the scanner and the programs for reading, interpreting, and recognizing the forms is very easy. Creating the mask on screen is similar to using a drawing program.

Our tutorial explains everything clearly step by step. If your forms contains extensive data, your PC can work overnight and the recognized data is available the next morning.

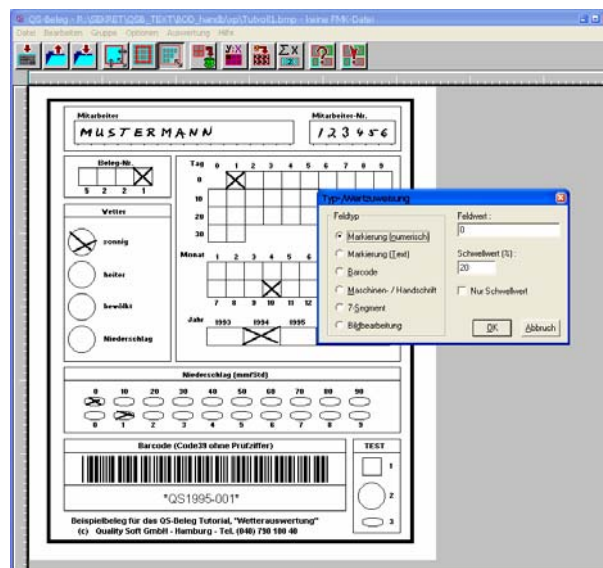
**We'd be happy to discuss the possibilities with you, analyze costs and how to best implement your special area of application.**

# Capabilities

## • Components

### ⇒ Editor

The graphic editor is the tool that helps you create the mask for recognizing your data. You can work with the familiar Windows user interface. Read new forms and test them directly onscreen. This allows you to quickly and flexibly implement and test changes or create new forms. You can edit yourself or have editing service performed by **QS QualitySoft**.



### ⇒ Recognition

Batch recognition is useful when interpreting large amounts of forms. The operator scans the forms and begins recognition using the mask previously built in the editor. Forms are then interpreted automatically. In daily routine, recognition is easy to handle, yet efficient and with flexible configuration. Application specific processing can be integrated easily. It is also possible to read and recognize forms consisting of several pages automatically (multiform recognition).

### ⇒ Correction

Here read data and possibly incorrect results are displayed on screen. Parallel to the data area, the corresponding part of the scanned image is shown, so that use of paper forms is no longer required. Display can be controlled individually (scroll, zoom, etc) without exiting entry form. Validation, corrections and additions are easily performed. The correction program is performed using **MS Access**, giving you all the possibilities of data processing that comes with this powerful tool.

### ⇒ **Integration with archive systems**

QS-Beleg can be used together with archive systems which perform the scanning first. QS-Beleg is then started as the recognition server afterwards.

The result data is sent to existing or new applications. The images are saved by the archive system and administered using the data delivered from QS-Beleg. It is also possible to read and recognize conventional checkmark forms. Since these forms contain boxes of "dropout color", it is possible, if necessary, to add the empty form optically in black before archiving, so that fields and markings are visible in the archived image.

It is also possible to add an automatic index to the recognized forms directly during the recognition or after the correction. It saves high costs of manually entering index data.

### ⇒ **Application-specific solutions**

Very often QS-Beleg is used to record data for applications that already exist. Several application-specific solutions are available for processing the results of the standard recognition.

The treatment depends on the specific application. For example, dictionaries can be used where names of streets, postal codes etc. are saved to compare doubtful or erroneous results with the saved data and correct them automatically.

It is also possible to verify and if necessary correct results for invoices, delivery notes or similar forms by summation and other logic functions.

Lookup in existing tables such as article number lists can also be used to verify the read results.

In addition, incorrect forms and fields can be marked as erroneous and have a highlighted correction to guarantee a quick and reliable check.

The aim of this procedure is always to automatically mark recorded forms as correct so that most forms do not require manual checking. By this using form, reading for large amounts of data still is efficient if 100% accuracy cannot be guaranteed.

⇒ **Checkmarks**

<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
---------------------------------------------------------------------

1 2 3 4 5
○ ○ ⊗ ○ ○

• **Field types**

**Checkmarks** determine yes/no values. Several fields can form a group which are especially checked and processed. QS-Beleg offers free design of mark fields (boxes, circles) in almost every size and combination on the form.

⇒ **Barcode**



**Barcodes** are often used to identify the forms. They are printed in advance or attached to the form with labels. Different codes are used depending on the area of application. QS-Beleg can read the most common codes. Barcode reading is very fast and reliable.

⇒ **2D Barcode**



**2D Barcodes** are a new generation of barcodes. They save much more information than a "linear" barcode. The PDF417 at the left stores 160 characters. You can encode a full ASCII character set with up to **2,700** characters. Both the number of rows and columns are selectable.

⇒ **Machine fonts (OCR)**

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The effectiveness of reading machine fonts has long since been tested. Modern OCR (Optical Character Recognition) gives very good results and saves a lot of time.

**Scanning (and OCR) instead of typing.**

⇒ **Hand written characters**

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Advanced technology (**ICR**) is used for the reading of handwritten characters. This enables simple data capture in many applications.

## Capability characteristics

⇒ **Processing capacity:**

Form processing depends largely on the hardware used, the size of the form and the extent and type of the data content on the form. Configurations from 50 to 12,000 forms per day on each PC are possible.

⇒ **Reading speed**

50-300 handwritten characters per second / 2000 markings per second

⇒ **Compatibility: QS-Beleg** supports the standards:

- Graphic formats: BMP, TIFF and many more
- Scanners: Bell&Howell, Canon, Fujitsu, HP ScanJet, Ricoh, TWAIN-compatible
- Data format: "ASCII delimited", MS Access or client-specific
- Recognition server as optimized Version for Windows 200x, NT, XP

## QS-Beleg: Highlights

- **Simplest handling with data registering**

- **Huge selection of data fields on the form**

Checkmarks with various designs (line, cross, tickmark ) in freely positionable fields (rectangular, square, circles).

Barcodes, many linear types supported , easy to expand. Size variable, depending on the scanned form.

2D Barcodes like PDF417 and Data Matrix as an option

Character recognition: Machine (OCR) and hand written characters (ICR)

- **Hand written characters**

- **Conventional (line) marking forms can be processed**

- **Compatible with many archive systems**

Automatic indexing with excerpts of the result data.

Underlaying of forms with dropout color forms possible.

- **Automatic recognition of mixed forms with identification marks**

- **Automatic batch recognition**

- **Verification and correction onscreen with display of form section simultaneously**

- **Individual verification and further processing are easy to connect**

- **Special task-specific modules**

e.g. MED for patient's data in hospitals

- **Developed to high standards in Hamburg, Germany**

Direct support from the manufacturer for project-specific adaptations, seminars and engineering also available.

## Project Description

**We have successfully completed numerous projects in close cooperation with our customers. Please feel free to contact us should you have any questions or require additional information.**

### **Example: "Laboratory testing "**

#### **⇒ Task**

At a large laboratory operation, daily time-critical order recording should be organized more effectively. The data on the request form identifies the order and the client as well as the patient whose sample is examined. At the doctor's practice, the desired laboratory tests are selected via manual marking. Immediately following recognition, the data is transferred to the laboratory system.

The test forms should be directly accessible for about four weeks for possible client questions.

#### **⇒ Solution**

A new machine readable form (DIN A5 format) is designed. Identification is done using barcode labels (the same identification as for the corresponding test tubes).

The patient's data is printed from the health insurance chipcard onto the request form, as normally done at the doctor's practice for referrals, prescriptions etc. The test request form contains 84 checkmark boxes. Using a table serviced by the laboratory, markings are matched to the tests. Exclusions and inclusions are controlled as well. Different form types are used so that client specific profiles are possible.

The forms are scanned, the data is interpreted and input into the laboratory system. As well, data sections are used to set up index files automatically for later research. The images are stored in a common archive system.

#### **⇒ Results**

New technology (scanner instead of marking reader or code pen) replaced old methods successfully. Besides easy handling, the advantages of the new solution are a reduction in costs in creating forms and in the electronically supported research.

#### **⇒ System environment and tools**

- 2 scanning / recognition locations, 2 Fujitsu Scanner
- 1 PC job for verification and correction.  
Research in the archive is possible from all computers in the network.  
Capability: 2500-3000 forms per morning.

## About QualitySoft

### **QS QualitySoft – Software Development**

We are an independent software company located at the Hamburg Technology Park since 1990. Based on our founder's extensive expertise in software development and project success, we have developed numerous products and have implemented many effective projects of application.

Thanks to the combination of reliable components and high professional expertise, we have created innovative solutions that help contribute to the rationalization of our customer's work processes.

Our highly trained staff are active in customized software development and offer many years of professional experience. Through current projects, we continue to expand and intensify our professional know-how.

### **Contact**

If you have any questions do not hesitate to contact us. Our phonenumber is +49 (0) 40 790 100 40.

Or get information about us and our products at [www.qualitysoft.de](http://www.qualitysoft.de)

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