8   Reading

Introduction

Code Types

The reading option allows the system to read special codes that are printed on the documents. The code contains information about the processing of the documents.

The system can read the following code types:

- OCR: Optical Character Recognition; the system can scan an area of the document for page number information in the page "n of m" (n/m) format
- BCR 1D: One dimensional barcode
- BCR 2D: Two dimensional barcodes
- OMR: 1-track Optical Mark Recognition
- Flex 1-9: Optional translation to support non standard OMR and BCR coding

Depending on the settings, the code tells the system if:

- The document set is complete
- Enclosures must be added to the set
- The system must stop
- The set is complete (no pages are missing)
- The envelopes are transported to the side exit or to the stacker

The sheets with the printed code are placed in a feeder. Depending on the programmed code, the other feeders can be used as selective feeders to add enclosures. In case of a Z-fold, the address has to be printed on the last page of the set (see Document orientation for the code position). With the other fold types, the first sheet of a set always contains the address. A full length code is printed on every sheet of a set. The code must appear at the same location on every page regardless of the actual code length.

The code on the last sheet of the set contains the insert instruction (unless reverse reading is used, see Reading settings, Reverse reading). The other sheets carry the accumulate instruction. If the "page n of m" code is used with BCR or OCR, the set will be inserted when n equals m.

English

General Requirements for Printing Codes

If you print documents for reading:

- Make sure the ribbon or toner quality is sufficient.
- Print the code in black on white background.
- Codes on the same sheet must have equal intensity.
- Print the code at the same position on every sheet.
- Be aware of "background noise". The reading function can be disturbed by: color changes on the form, background design and a logo or copy on the opposite side of the sheet that will bleed through.
- For matrix printers near letter quality (NLQ) printed characters are preferred to obtain maximum blackness (double strike).

> For more information on how to print a reading code on your document, contact your service organization.

8

OCR Code Description

English

With OCR page n / m (page n of m) you can print human readable characters on your mail set, which can be read by the system, to insert your mail set. The system can recognize the characters in the so called "n / m" format.
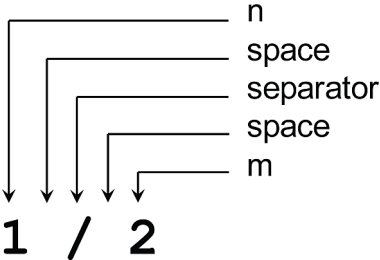
If the value of n is smaller than the value m the sheet will be accumulated, if the value of n is the same as the value of m the set will be inserted; m is the total number of pages and n is the current page.

Some specifications for OCR page n / m:

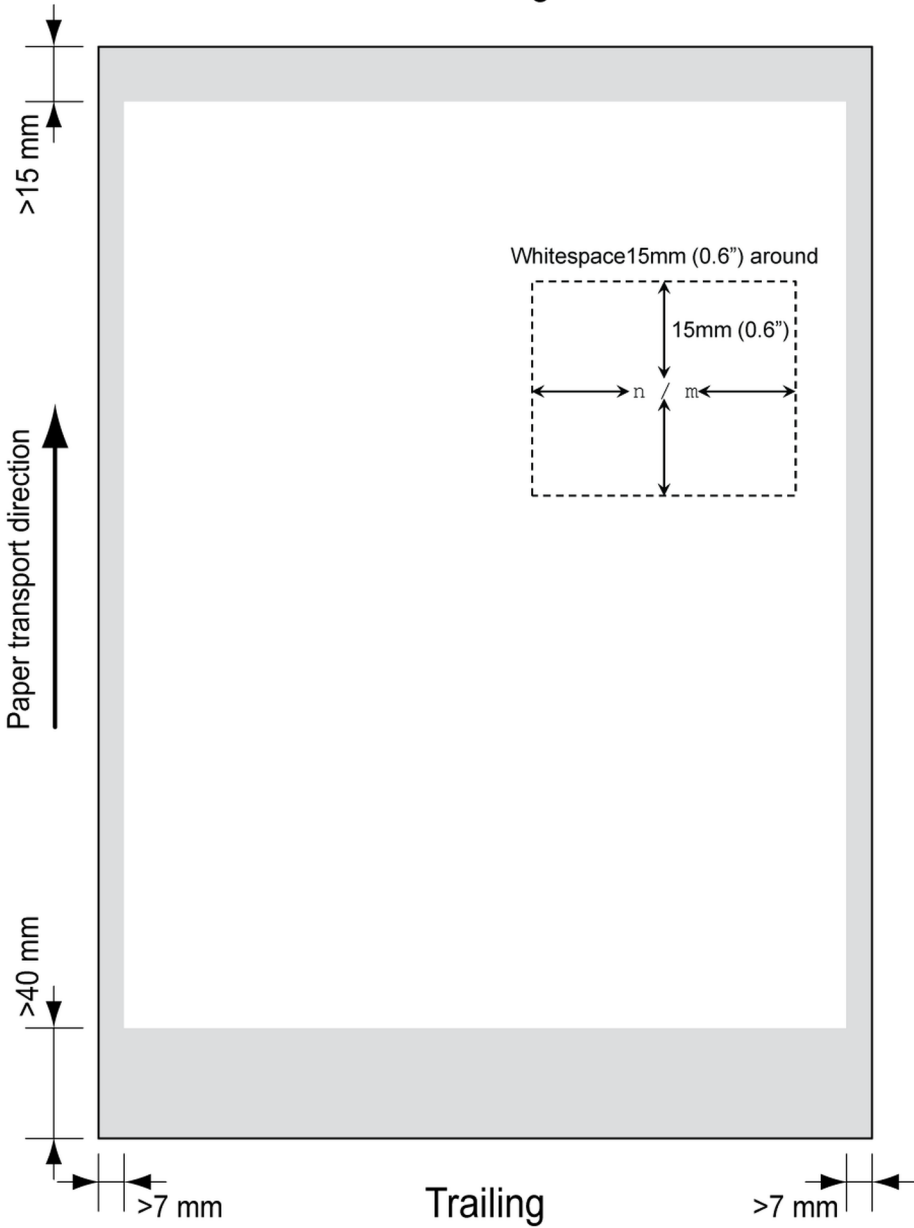| Supported fonts / font size	Times New Roman, Arial, Helvetica, Courier. Italic text will not be supported, **bold** not recommended.
Character size	12 point dotpitch
Supported layouts	n / m (n,space,/,space,m) Both n and m need to be in the text, n first.
Print Quality	600 dpi (preferable)
Clear Area	15 mm (minimal), around
Color Background	White
Print drift	+/- 2 mm (max.)

Positions	Only one region of interest per job
	Only horizontal text (portrait) supported
	All text on the same line

Example:

n
space
separator
space
m

1 / 2

Position of the code on the document (example)

Leading

Whitespace15mm (0.6") around

15mm (0.6")

n / m

>15 mm

Paper transport direction

>40 mm

>7 mm

Trailing

>7 mm

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BCR Code Description

Bar codes are used for mail sets that are processed in Document Systems. The bar codes tell the system if:

- The document set is complete
- The envelope should be sealed
- Enclosures should be added
- Etc.

Barcode can be printed vertically and horizontally. Two types of barcodes are supported, 1D and 2D barcodes (depending on installed licenses).

Supported 1D barcodes

- Code 39

- Interleaved 2 of 5

- Minimum line thickness of a bar: 0.25 mm (0.01 inch)
- The thickness ratio of thick bars versus thin bars: 2.2
- Minimum width of the barcode: 5 mm (0.2 inch)
- The white area in the picture shows the limits where the code can be printed

Code 128 is not supported. It may work but it is not recommended because it is very sensitive to speed variations.

Supported 2D barcodes

Datamatrix

- Minimum cell size 0.35mm (0.014")
- Label size 30mm (1.18") square max
- Preferred print quality 600dpi
- Print drift from page to page +/-2mm max
- Colour background: White
- Minimum white space 6.5mm (0.26")
- Datamatrix can be read in all directions.

PDF 417

- Bar width 0.35mm (0.014") min
- Preferred print quality 600dpi
- Print drift from page to page +/-2mm max
- Colour background: White
- Minimum white space 6.5mm (0.26")

Printing contrast The label must be strongly printed in black on white background for maximum contrast. Other light backgrounds may be acceptable, subject to test.

8

English

Position of the code on the document
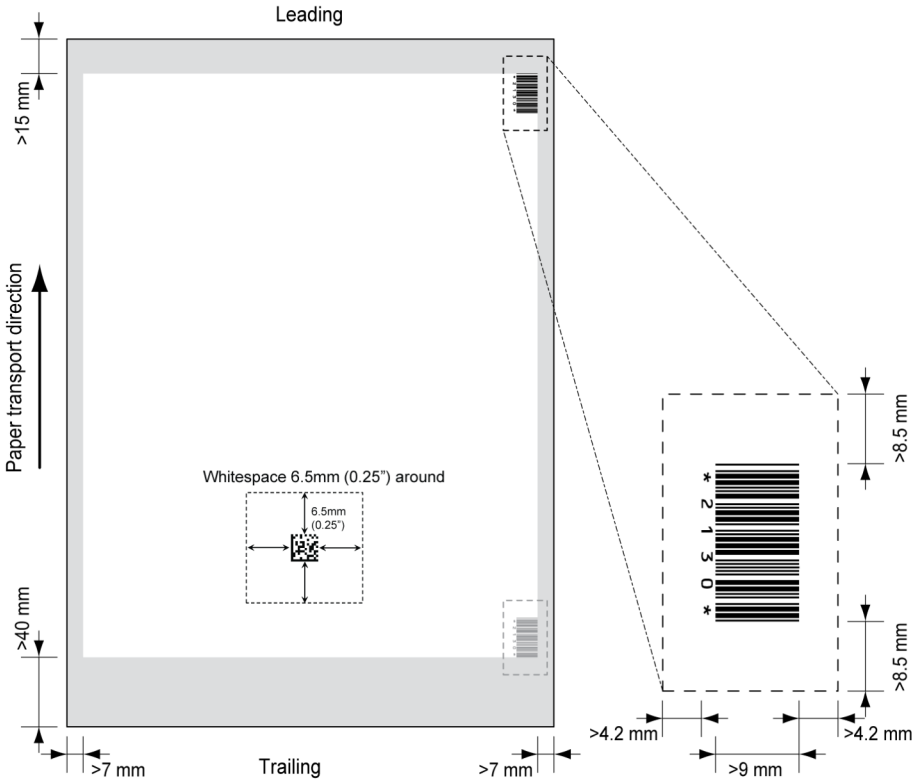
BCR license types

There are two BCR license types:

- Basic
- Advanced

BCR basic license

For the BCR basic license the following functions are supported:

- Page N of M: as long as N is below M, the document set is not complete. As soon as N=M, the set is complete and will be inserted into an envelope.
- Insert/Accumulate: defines when a document set is complete and must be inserted into an envelope.

At least one basic commands is required. Page N of M can be used in combination with Customer ID as an integrity check.

8

English

BCR advanced license

For the BCR advanced license the following functions are supported:

- The basic functions (page N of M, insert/accumulate).
- Sheet sequence - Every sheet has a number, regardless of the document set it is part of. If a sheet is missing, an error is generated.
- Group sequence - Every document in a set has the same group number. If one document set is missing, an error is generated.
- Divert (Divert & Continue) - The set will be diverted and the system continues.
- Stop (Divert & Stop) - The set will be diverted and the system stops indicating error (FT1-RE1-000 Reading stop - Stop mark read).
- Selective feed - If the system reads the command, an enclosure from the enclosure feeder is added to the set.
- Sealing control - Determines if envelopes are sealed or not.

8

English

Position of the code on the document
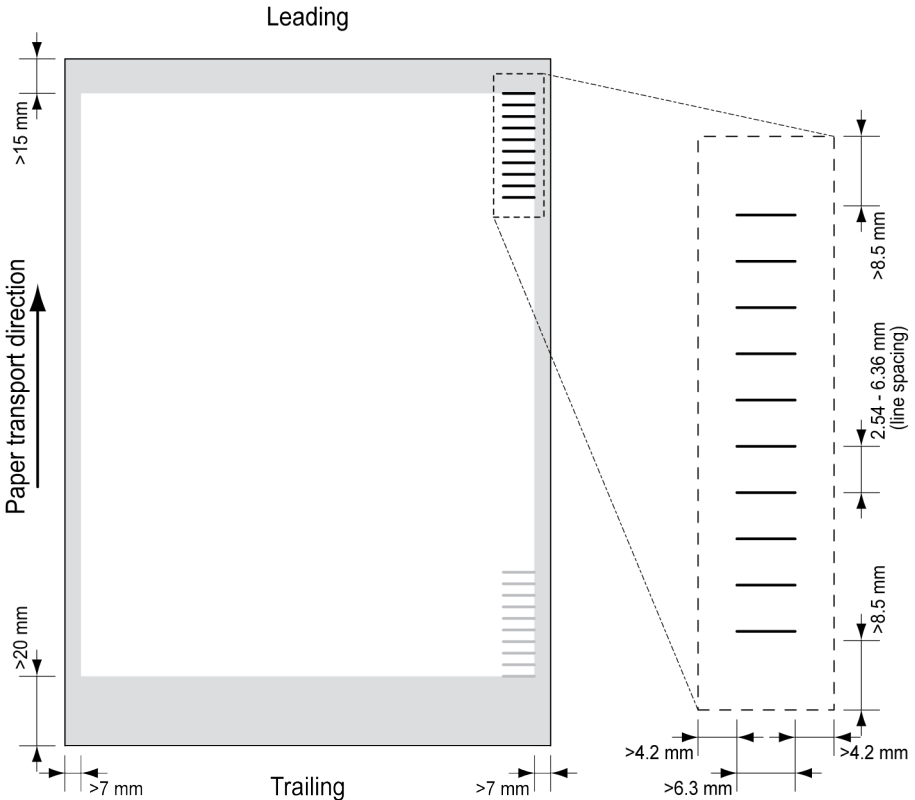
Minimum line thickness of a mark: 0.2 mm (0.008 inch).

Default the first mark from the top is set to: 100 mm (3.9 inch). This parameter is set in the job settings.

The code must have a consistent number of marks on every page.

The white area in the picture shows the limits where the code can be printed.

OMR license types

There are two OMR license types:
- Basic
- Advanced

OMR basic license

For the OMR basic license the following functions are available:

- Start mark: indicates the start of the code.
- Insert/Accumulate: defines when a document set is complete and must be inserted into an envelope.
- Parity check: by adding a parity mark the reading code can be checked. The sum of the marks must be even.
- Safety Mark: is used as an extra security (only 1-track OMR). With skewed paper the reading head can miss part of the reading code. In these situations the safety mark is not read, and the system will give an error. The safety mark also indicates the end of the reading code. This mark must always be present on the document if it is part of the code definition.
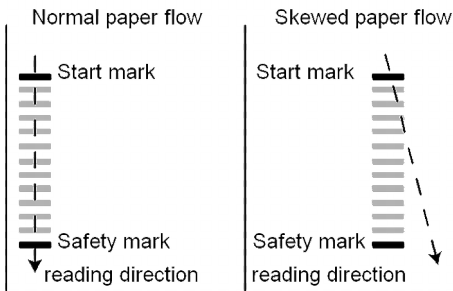
The minimum code is one mark in one line (insert). However for reliability it is advised to use at least 2 marks. The first line is the start mark. A mark printed on the second line means insert. No mark on the second line means accumulate.
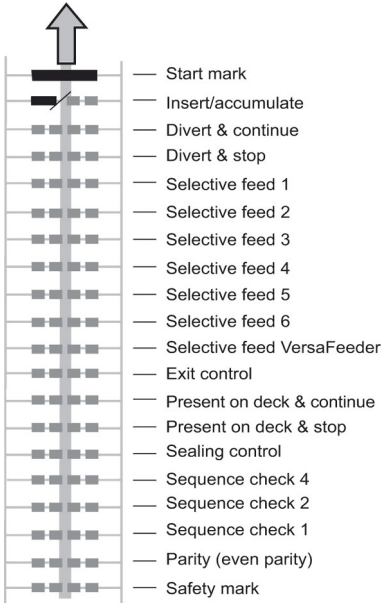
OMR advanced license

For the OMR advanced license the following functions are available:

- The basic functions (Start, Insert, Parity, Safety).
- Stop (Divert & Stop) - The set will be diverted and the system stops indicating error (FT1-RE1-000 Reading stop - Stop mark read).
- Selective Feed (feeder 1-3) - If the system reads the command, an enclosure from the enclosure feeder is added to the set. This function is printed on the last sheet of a set.
- Sealing control - Determines if envelopes are sealed or not. If a mark is printed, the envelope is not sealed.
- Sequence Check - Sheets in a stack can accidentally get out of sequence or can be missing. This can be detected by the sequence check. Each sheet has a binary code that is a part of the reading code. Depending on the application one, two or three marks are used by sequence check.

OMR general remarks

General remarks:

- In case of OMR the marks must always be used in the sequence as shown in the figure.

—	Start mark
—	Insert/accumulate
—	Divert & continue
—	Divert & stop
—	Selective feed 1
—	Selective feed 2
—	Selective feed 3
—	Selective feed 4
—	Selective feed 5
—	Selective feed 6
—	Selective feed VersaFeeder
—	Exit control
—	Present on deck & continue
—	Present on deck & stop
—	Sealing control
—	Sequence check 4
—	Sequence check 2
—	Sequence check 1
—	Parity (even parity)
—	Safety mark

- If a function is suppressed the following function will move upwards one line.
- The mark definition is a service setting.

An Example of OMR Code

In the figure the legend for the following example is shown. In this example, a set of 8 sheets with one selective feed and three sequence check marks is shown.

Sheet 1 Sheet 2 Sheet 3 Sheet 4 Sheet 5 Sheet 6 Sheet 7 Sheet 8
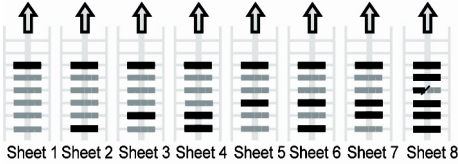
- The first position is used for the start mark which must be printed on every sheet.
- The second mark position is used for the insert/accumulate command. A printed mark means insert, no mark means accumulate. Therefore the mark is printed on the last sheet of the set.
- Position 3 is reserved for selective feed from the enclosure feeder. Print a mark on position 3 when a selective feed from the enclosure feeder is required. The marks are printed on the last sheet of the set.
- Position 4, 5 and 6 are used for the sequence check marks. In this case a three mark sequence check is used.

Flex Reading Code Description

With "Flex reading" also non-standard codes and alternative document handling algorithms can be recognized. Flex reading can be activated by a system specific license code and by a customer specific setting that is saved in a physical dongle.
With Flex three types of reading can be supported:

- OMR
- BCR 1D
- BCR 2D

Depending on the license up to 9 Flex definitions can be used on the system.
Creating a Flex job is similar like creating a OMR / BCR reading job.

8

English

Create Jobs with Reading

Create a BCR Job

To create a job with BCR:

1. From the Job list menu, tap **[New job]**.
2. Choose **[Manual]** to define the job settings.
3. Select an envelope.
4. Tap **[Main document]**.
5. Tap **[Custom]**.
6. Enter the document size or select a standard type.
7. Tap the **[Reading]** tab.
8. Select the code type **[BCR 1D]** or **[BCR 2D]**.
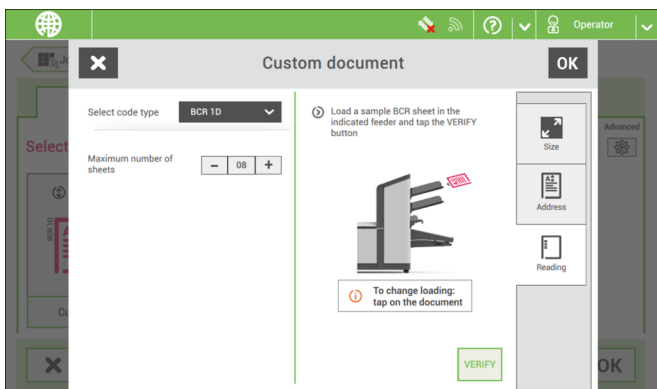
9. Load a sample document in the feeder tray as indicated.
10. Tap **[Verify]** to find the barcode(s) on the sheet.
    • If multiple barcodes are found you can select the correct barcode from the list.
11. Tap **[OK]** and follow the remaining steps to complete the job.
12. When you completed the job creation, tap **[Save]** to save job.

If required the maximum number of sheets can be reconfigured. Refer to Reading Settings on page 93 for more details on how to change these settings.
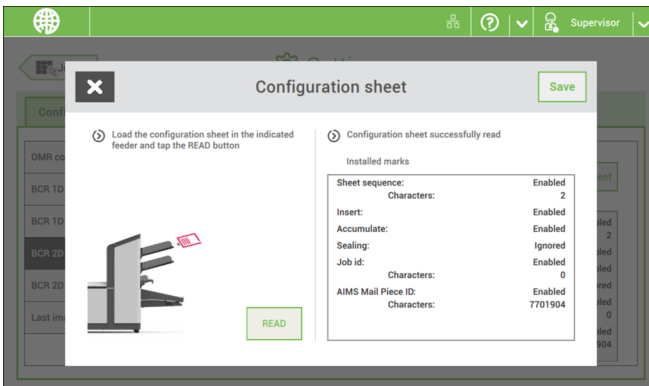
Read a Configuration Sheet

If you want to set the code definition for BCR, use a BCR configuration sheet. The configuration sheet function is available when you are logged on as a supervisor on page 5.

To read a configuration sheet:

1. Go to the settings menu for supervisor, see Opening the settings menu (supervisor) on page 57.

2. In the settings menu, tap the **[Reading]** tab.
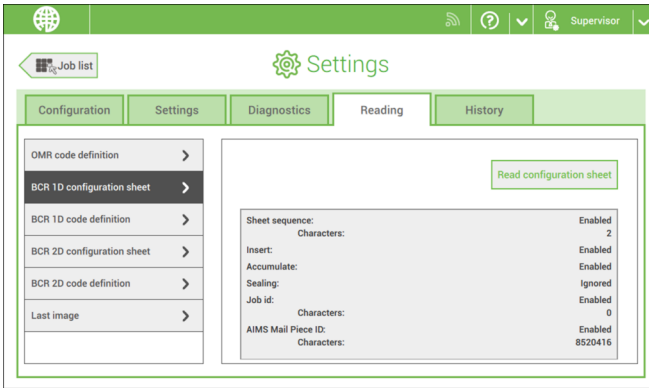
3. Tap **[BCR 1D configuration sheet]** or **[BCR 2D configuration sheet]**.
4. Tap **[Read configuration sheet]**.
5. Load the configuration sheet as indicated and tap **[READ]**.

**6.** Tap **[Save]** to save the new barcode definition.

⇥ After reading a configuration sheet, jobs with BCR reading might have changed. These jobs are marked with an exclamation mark, verify the job settings before running the job.

You can also read a configuration sheet when you create or edit a BCR job. The function is available in the side menu.
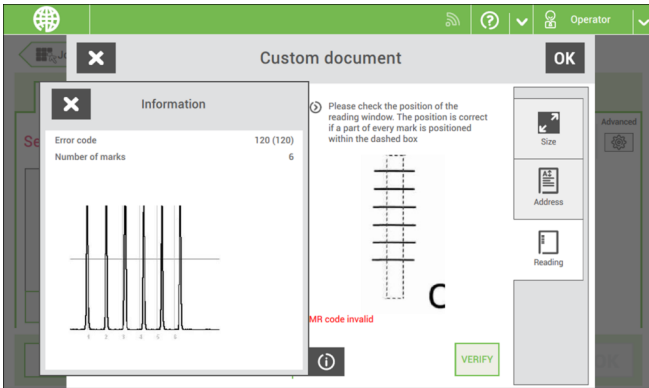
Create an OMR Job

To create a job with OMR:

1. From the Job list menu, tap **[New job]**.

2. Choose **[Manual]** to define the job settings.

3. Select an envelope.

4. Tap **[Main document]**.

5. Tap **[Custom]**.

6. Enter the document size or select a standard type.

7. Tap the **[Reading]** tab.
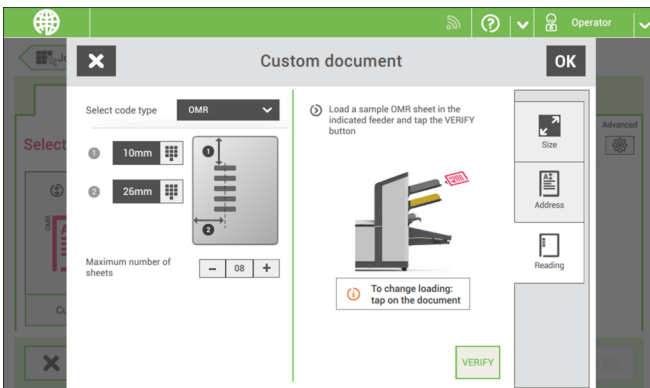
8. Select the code type **[OMR]**.

9. Configure the location of the OMR marks by setting the offset of the top and left side of the sheet.

10. Load a sample document in the feeder tray as indicated.

11. Tap **[Verify]** to read an example sheet to check the correct reading of the OMR marks.

12. If necessary adjust the position from top and from left side. Verify again with a sample sheet.

13. Tap the information button to verify the read OMR marks.

14. Tap **[OK]** and follow the remaining steps to complete the job.
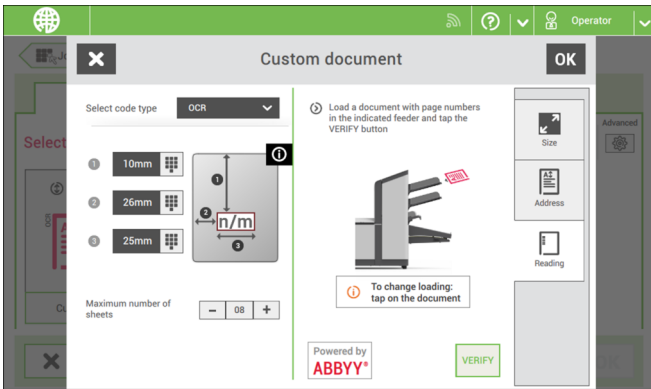**15.** When you completed the job creation, tap **[Save]** to save job.

If required the maximum number of sheets can be reconfigured. Refer to for more details on how to change these settings.

Create an OCR Job

To create a job with OCR:

1. From the Job list menu, tap **[New job]**.
2. Choose **[Manual]** to define the job settings.
3. Select an envelope.
4. Tap **[Main document]**.
5. Tap **[Custom]**.
6. Enter the document size or select a standard type.

8

English

91

7. Tap the **[Reading]** tab.

8. Select the code type **[OCR]**.
9. Configure the location of the n / m characters by setting the offset of the top and left side of the sheet **[1]** and **[2].**
10. Configure the width of the n / m characters **[3].**
11. Load a sample document in the feeder tray as indicated.
12. Tap **[Verify]** to check if the page n / m characters are read successfully.
13. Tap **[OK]** and follow the remaining steps to complete the job.
14. When you completed the job creation, tap **[Save]** to save job.

If required the maximum number of sheets can be reconfigured. Refer to Reading Settings on page 93 for more details on how to change these settings.
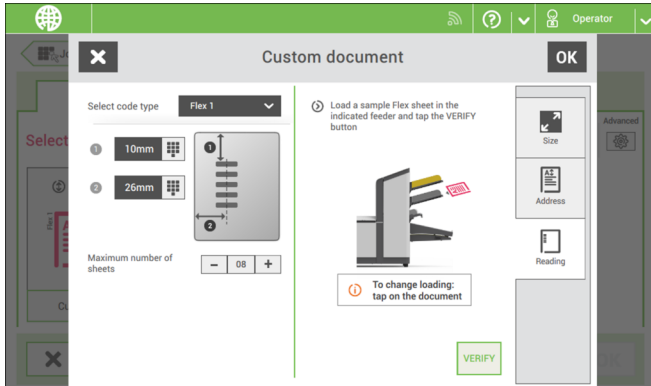
Create a Flex Reading Job

To create a job with Flex reading:

1. From the Job list menu, tap **[New job]**.
2. Choose **[Manual]** to define the job settings.
3. Select an envelope.
4. Tap **[Main document]**.
5. Tap **[Custom]**.
6. Enter the document size or select a standard type.
7. Tap the **[Reading]** tab.

8.   Select the code type **[Flex ..]**.

> ⟹   Depending on the flex code type the OMR or BCR settings have to be configured.

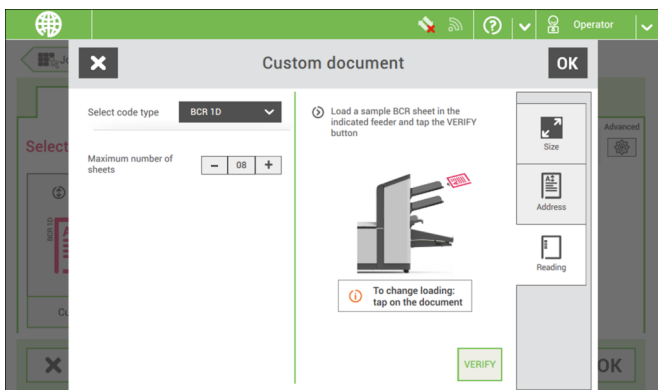**9.**   Follow the remaining steps to complete the job.

If required the maximum number of sheets can be reconfigured. Refer to Reading Settings on page 93 for more details on how to change these settings.

Reading Settings

When you create a reading job for OCR, OMR, BCR 1D/2D or Flex reading, the following options can be set:

- **Maximum number of sheets**: use the **[-]** or **[+]** button to select the maximum amount of sheets in the set of documents.

> The maximum number of sheets in a set is 25. When the number of sheets exceeds 5 or 8, depending on the fold, the document can not be folded anymore. In this case, the maximum length of sheets is 148 mm for a C5/6 envelope. Also make sure that the fold is set to No fold. Ignoring this will certainly lead to stoppages.
>
> When the maximum number of sheets exceeds the programmed maximum number of sheets in a set, the system stops and error FT1-RE1-312 will be displayed. After removing the set and tapping the **[Start]** button, the system starts and repeats the process until an insert or divert mark is encountered. Error FT1-RE1-003 (final set part) will be displayed.

English