



## Cognex image-based barcode reading technology automates DVD return process



*At the start of the returns process, the Netflix mailers are loaded onto the first of two rotating carousels. Each mailer is placed in a nest and then rotated under the second station where it is checked for thickness (no disc, one disc or two discs).*

**// Since go-live, this project has exceeded our expectations in all areas. The reliability of the DataMan has been excellent. //**

*Paul Johnson, Netflix, Inc.*

One of the most expensive processes at Netflix was the handling of DVD returns. Huge resources were tied up in manually opening mailers, taking out the sleeved discs, checking the titles on the DVDs against the sleeves, checking the discs for physical defects, cleaning them and scanning them into the system. To improve production quality and reduce labor costs, Netflix asked several of the world's leading automation companies to propose solutions for their DVD returns process. Seven companies were invited to tender, of which two were selected to develop and build a prototype, competing head-to-head in a four week performance trial taking place in California.

Bronway Automation, a specialist automation solutions provider based in County Wicklow, Ireland, was one of the two companies selected to build a prototype for the trial. They designed, developed and installed their ARRM3600 (Automated Rental Return Machine) prototype in a Netflix distribution hub in California. Following an intensive trial period set within a live production environment, Bronway achieved superior performance results and were awarded the contract to supply 180 production units. The ARRM3600 units were supplied directly to 42 Netflix distribution centers across the U.S. The delivery and installation schedule was challenging with a commitment to deliver six machines per week, each consisting of over 6,500 components, all of which needed to be rigorously tested and validated prior to installation. Despite these tight deadlines, all installations were completed on schedule. Bronway completed the entire manufacturing program without missing a single Netflix "go live" date.

**Customer Name:**

Netflix

**Industry:**

Logistics

**Application:**

Barcode Reading of Return DVD Mailers

**Cognex Product:**

DataMan Barcode Reader

### Summary

**Challenge**

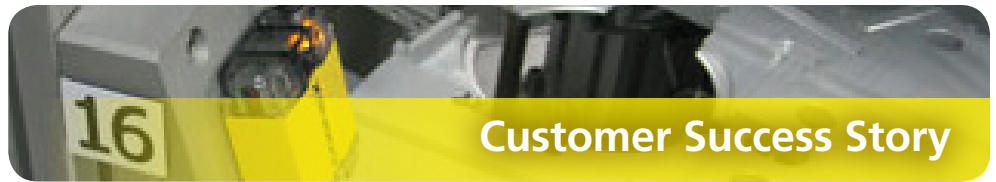
Undertake barcode reading and inspection tasks for 3,600 mailers per hour to eliminate one of their most costly processes—manually handling returns.

**Solution**

Bronway Automation and Netflix deployed automated rental return units at 42 distribution centers across the U.S. featuring DataMan® barcode readers. Each unit has nine DataMan readers positioned at various stations to undertake barcode reading at every step of the process.

**Benefits**

DataMan barcode readers have surpassed read rate expectations and read barcodes even if they are damaged or faded. The units have improved the DVD return process and reduced labor costs.



### Vision technology makes the difference

To undertake the necessary inspection and verification checks throughout the rental returns process, the ARRM unit utilizes advanced DataMan® barcode readers from Cognex. The DataMan code readers read barcodes on the envelope, sleeve and DVD disc, which is communicated by the Bronway ARRM to a central server to ensure complete traceability throughout the process. Each ARRM unit has nine DataMan code readers positioned at various stations to undertake barcode reading and inspection tasks for 3,600 mailers per hour.

James Frost, General Manager at Bronway Automation commented, "Cognex and the DataMan barcode reader were chosen because they offered a single vision solution that could read the Netflix disc hub barcode at any radial orientation and the reading of barcodes to determine the orientation of the Netflix sleeves. No other supplier could offer a single unit to address both requirements.

### The rental return process

At the start of the returns process, the Netflix mailers are loaded onto the first of two rotating carousels. Each mailer is placed in a nest and then rotated under the second station where it is checked for thickness (no disc, one disc or two discs).

The next step is to cut open the mailer which is then rotated to the next station where the loose flap is removed, before being transferred onwards. Once the sleeve has been extracted, the DataMan identifies the barcode position to determine the orientation of the sleeve so that the disc can be extracted from the sleeve. As the sleeve can be orientated in any one of eight orientations (four orientations if facing upwards and four orientations if facing downwards), four DataMan readers (two on top and two below) are used at this station to read the barcode and determine the orientation. When a barcode is detected, the data and location is reported to the ARRM, thus allowing the orientation of the sleeve to be determined and manipulated later in the process by repositioning the open side of the sleeve outwards so the disc can be removed.

Each Netflix DVD has a doughnut shaped barcode label (hub ring label) affixed around the center hole on the artwork side of the disc. Once the disc has been removed from the sleeve, the barcode must be scanned. Two DataMan barcode readers are mounted here (one

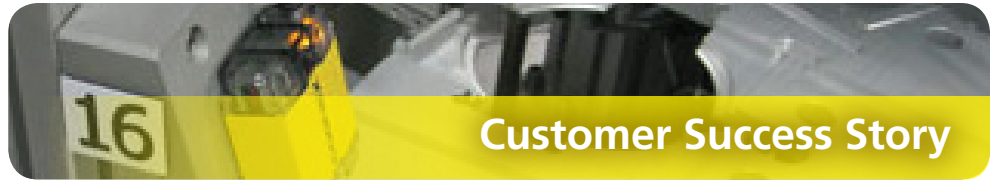


*DataMan barcode reader positioned for barcode reading.*



*ARRM3600 units on the floor of the Netflix DVD returns facility. Each ARRM3600 inspection station can perform barcode reading and inspection tasks for 3,600 mailers per hour.*

from above and one from below) to read the barcode on the hub ring label. The orientation of the hub ring barcode is not fixed in a specific radial orientation; the camera must read it regardless of position. The orientation of the disc is determined by the DataMan that returns a barcode result. The disc is then re-orientated, if necessary, for subsequent cleaning and surface scanning. Once the discs have passed the surface scan inspection, they are reinserted into their original sleeve.



**Customer Success Story**

The ninth DataMan scans the barcode on every sleeve prior to the ARRM3600 assigning its delivery to a specific location for further processing.

In addition to providing the ARRM units, Bronway undertook a comprehensive training program with Netflix operators, technicians and engineers across the U.S.

**// By far the most challenging project I've ever been associated with, and they've done a very good job of hitting all of our milestones and any performance we were looking for. //**

*John Voris, Netflix, Inc.*

Paul Johnson, Director of Operations Support, Netflix Inc. stated, "Since go-live, this project has exceeded our expectations in all areas. Having automation to check that the correct disc is in the right sleeve has had a measureable impact on our customer satisfaction. The reliability of the DataMan has been excellent, and even when we did have an apparent issue with the barcode readers (the root cause of which was actually with a USB hub) the speed with which Cognex sent an engineer to work alongside Bronway to quickly resolve the problem on-site really impressed me."

John Voris, former Vice President of Operations Engineering, Netflix Inc, viewed this Bronway project as: "By far the most challenging project I've ever been associated with, and they've done a very good job of hitting all of our milestones and any performance we were looking for."

Martin O'Malley, Managing Director, Bronway, viewed the selection of the Cognex barcode reading technology as "critical to the overall success of the project. Great care and attention was paid in the investigation of all available vision suppliers, their vision systems and

their technical competence to support a project of this magnitude and technical complexity. Cognex was selected as the vendor of choice for all these reasons and our faith in them to deliver on their commitments was fully validated when technical issues arose.

Cognex showed their commitment to finding a solution by working hand in hand with Bronway engineers (on-site in California) to fully understand the problem and subsequently engineer a new version of the driver software for the DataMan barcode readers which worked flawlessly thereafter. Cognex proved to be a great partner for Bronway and I would have no hesitation in partnering with them again on future projects."

**DataMan Barcode Readers**

The benefits of image-based readers combined with the ease-of-use and cost of laser scanners, featuring:

- Highest read rates
- No moving parts
- Performance feedback
- Industrial connectivity



**Americas**

United States, East	+1 508 650 3000
United States, West	+1 650 969 8412
United States, South	+1 615 844 6158
United States, Detroit	+1 248 668 5100
United States, Chicago	+1 630 649 6300
Canada	+1 905 634 2726
Mexico	+52 81 5030 7258
Central America	+52 81 5030 7258
South America	+1 909 247 0445
Brazil	+55 47 8804 0140

**Europe**

Austria	+43 1 23060 3430
Belgium	+32 2 8080 692
France	+33 1 4777 1550
Germany	+49 721 6639 0
Hungary	+36 1 501 0650
Ireland	+353 1 825 4420
Italy	+39 02 6747 1200
Netherlands	+31 208 080 377
Poland	+48 71 776 0752
Spain	+34 93 445 67 78
Sweden	+46 21 14 55 88
Switzerland	+41 71 313 06 05
Turkey	+90 212 371 8561
United Kingdom	+44 1327 856 040

**Asia**

China	+86 21 5050 9922
India	+9120 4014 7840
Japan	+81 3 5977 5400
Korea	+82 2 539 9047
Singapore	+65 632 55 700
Taiwan	+886 3 578 0060

**COGNEX**

[www.cognex.com](http://www.cognex.com)

Corporate Headquarters  
One Vision Drive Natick, MA 01760 USA  
Tel: +1 508 650 3000 Fax: +1 508 650 3344

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Lit. No. IDCS02-1307