


# INLINE XC-3100

## X-Ray Inline Automatic Counting System

ADD: PLOT NO C-2 SECTOR -85 NOIDA GAUTAM BUDDHA NAGAR-201301, Uttar Pradesh，India
Email:sales@hjetech.in
Web:www.hjetech.in

# X-Ray Counting Series Inline System, High-speed Counting and Stocktaking

Tape reel, JEDEC reel, IC moisture sensitivity package

INLINE XC-3100 is mainly used for high-speed counting of reel materials in the SMT industry. It can count 7-15 inch Tape Reel/JEDEC reel/IC moisture sensitivity package and other materials. Material types include all resistance and capacitance materials and IC materials. Use X-Ray imaging technology to detect production materials and obtain image information for high-speed counting, and connect equipment data information with the system.

## Features and Advantages:

| | |
|---|---|
| **Functions** | Fully automatic loading and unloading reel |
| | Intelligent AI automatic code reading |
| | Automatic labeling, automatic paste to the blank area, and visually locate the rotation angle |
| **Features** | 0201 as an example, the identification accuracy is as high as 99.99% |
| | Can count special-shaped materials, bulk materials |
| | Auto fluoroscopic imaging, auto analysis, auto counting |
| | No operating table, embedded with a monitor to save space |
| | Read all labels of the material reel and output to MES |
| | Connect to MES, and data updated automatically |
| | Auto loading and unloading, auto labeling |
| Advantages | Different material reels can be counted and imaged at the same time. Automatic numbering/counting. |
| | 9-15 seconds for a quick counting |
| | Reduce the number of processes, shorten process routes, and improve efficiency |
| | Comes with its own database and provides query and printing. |

# Specifications:

| | Model | XC-3100-INLINE |
|---|---|---|
| Tube | Tube type | Enclosed type |
| | Tube focusing size | 30μm |
| | Tube voltage | 50kV (limit of 80kV) |
| | Tube current | 0.01-1mA |
| Detector | Image taking type | Flat-panel Digital |
| | Imaging precision | 139μm |
| | Image size | 430*430mm |
| | Dpi | 3072*3072px |
| | Pixel precision | ≤2μm |
| Code reading camera | image taking speed | 5 EDS/s |
| | Reading pixels | 20 million / inch |
| System | Miscalculation rate (0201) | ≤0.01% |
| | Accuracy | 99.99% (0201 as an example) |
| | Minimum part size that can be detected | 008004 |
| | Operating system | WINDOWS 10 |
| | Record keeping requirements | Save by day, no capacity limit, TXT.CSV.XLS |
| | Operating mode | AI full warning tracking system |
| | Power supply | AC110-220V50-60HZ |
| | Power | 1200W |
| | Radiation safety test | <1 uSV/H |
| | Repeatability test | ≥2.0sigma |
| | CYCLE TIME | ≤15s / time |
| Structure | Material counting speed | 9-15 S / reel (CHIP 0201) |
| | Max diameter of the material reel | 415mm (4-15INCH) |
| | Max height of the material reel | 1-80mm |
| | Max weight of the material reel | ≤10kg |
| | Machine size | 3087*1194*1957mm(L*W*H) |
| | Machine size (including printer) | 3087*1488*1957mm(L*W*H) |
| | Machine weight | 1500kg |
| | Stage movement mode | Fully automatic loading, counting, labeling and unloading |
| Safety | CE Certificate | Yes: STE23112103S |
| | State immunity | Yes |
| | Radiation Safety Permit | Yes: Guangdong Environmental Radiation Safety Permit [B0640] |

# X-Ray Principle Description:

## A Schematic diagram of the X-Ray working principle

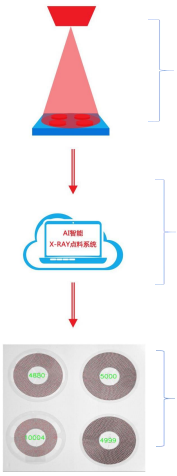
X-Ray tube

SMT material reel (ready to be counted)

Large-size X-Ray detector

AI intelligent material counting algorithm system

Counting results



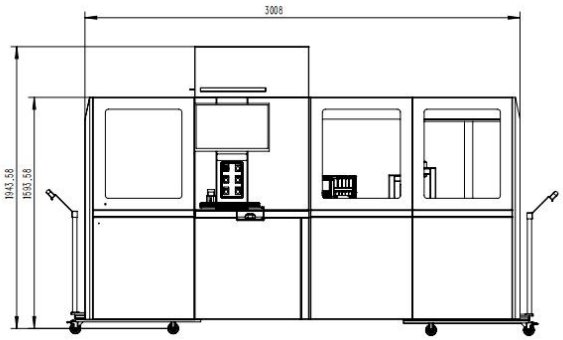
First part
X-Rays are emitted by an X-Ray tube.
The X-Ray detector receves and forms the X-Ray image.

Second part
The AI intelligent material counting algorithm system quickly matches the material model and calculates the results.

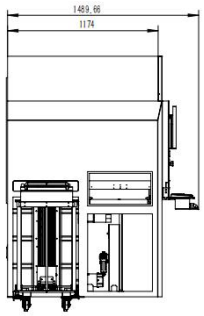
Third part
Present the counting results and automatically upload them to the MES system

# Dimensional Drawing:

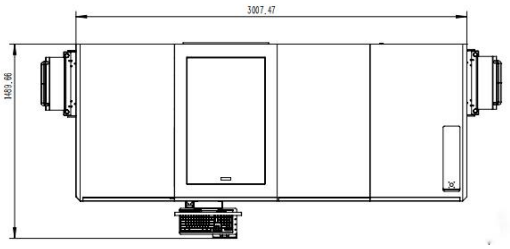
## Front view



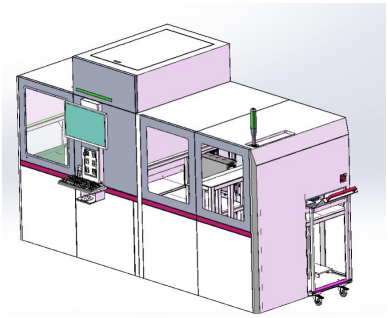

## Side view




## Side view




## Full view

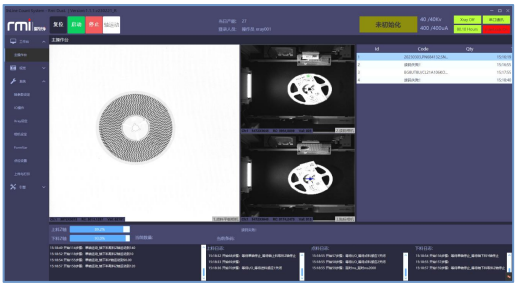


# Inline Fully Automatic Operation Process:

## Auto loading

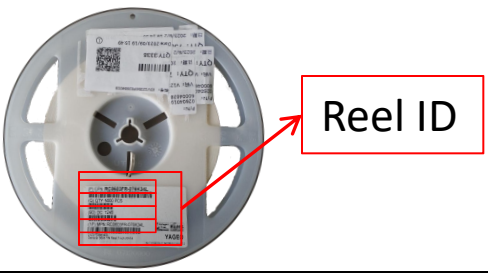
The materials are put into the loading cart, the cart is pushed into the corresponding position, and the grabber grabs the material reel and puts it on the conveyor belt.

## Auto counting, analysis



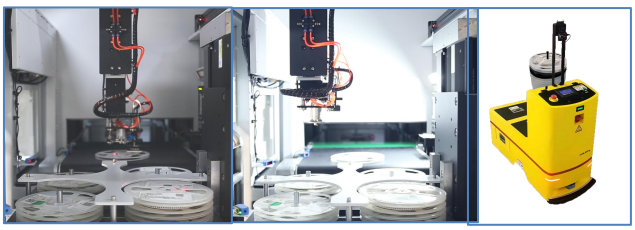
Transfer to the material counting position, close the door, the detector will automatically take photos, automatically analyze and counting. After counting successfully, the computer will automatically turn off the X-Ray, the material quantities are uploaded to the customer’ s server, generate the new information bar code of the material tary.

## Auto transcoding



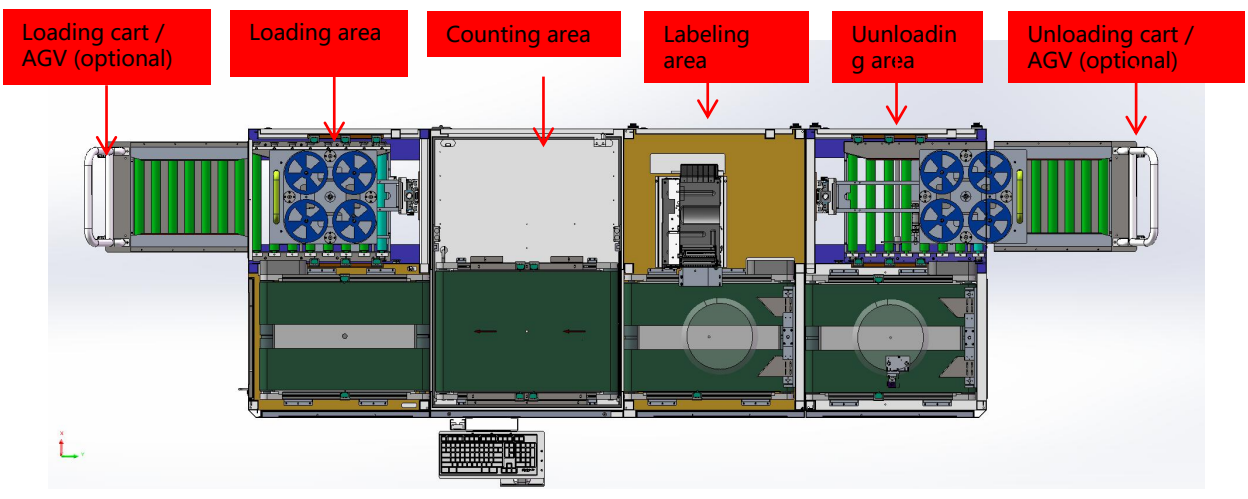

Automatically generate and print unique codes.
It can automatically generate unique codes based on customer’ s material labels.

## Automatic unloading

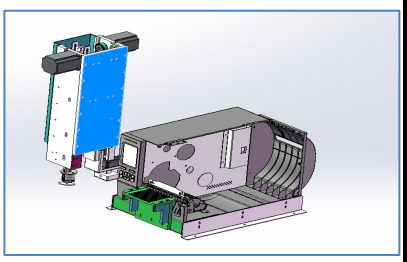


After the counting is completed, the material reel is unloaded from the warehouse. The material reel flows out through the conveyor belt. The machine take a photo to position it. Then new barcode is affixed to the corresponding position by the gripper. After pasting, the new barcode is photographed and positioned. The gripper puts the material reel into the material cart to complete the counting.

# Counting Flow Chart:

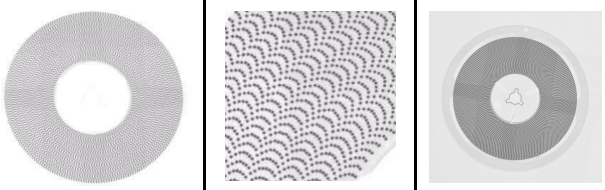


# Accessories Parameters:

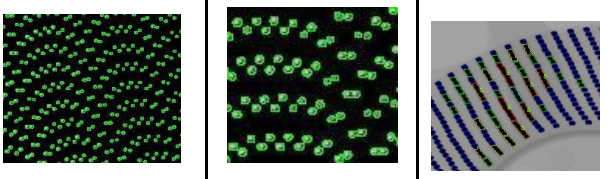
| Printer specification parameters | | | |
|---|---|---|---|
|  | Printing module | Dpi | 8 points / mm (203 DPI) |
| | | Maximum print speed / width | 152.4 mm (6 ") / second / 108 mm (4. 25") |
| | | Size | 204 mm (W) X 164 mm (H) X 280 mm (L) |
| | | Weight | 2.4 kg (5.29 lb) |
| | Hardware specifications | Storage | 8 MB Flash memory, 16 MB SDRAM |
| | | Communication interface | USB2.0, Serial port (RS-232) |
| | | Buzzer | Standard |
| | Power specifications | imput | AC 100-240V, 2A, 50-60HZ |
| | | output | DC 24V, 3.75A, 90W |
| | Paper specifications | Paper type | Continuous paper, spacing paper, black label paper, folding paper, perforated paper (external roll type) |
| | | Minimum paper length | 5 mm (0.2 ") |

# AI Algorithm Principle:

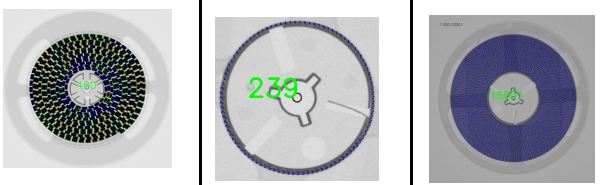
Original



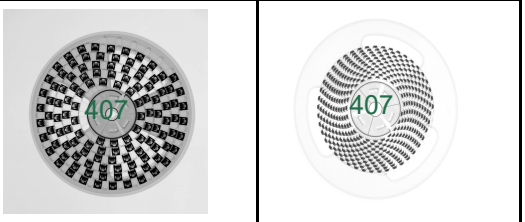
Measured image

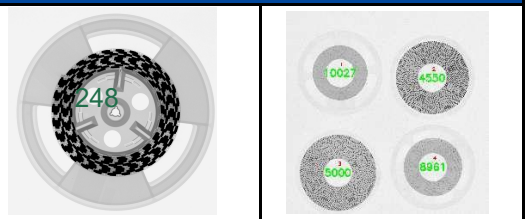


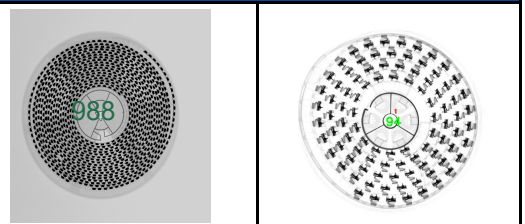
Measured data



# Calculation Legend:



# Compared with Traditional Counting Machine：

| | INLINE XC-3100 intelligent inline counting machine | Traditional counting machine + manual |
|---|---|---|
| Counting speed | 9-15S / time | 80S / time |
| Inventory cycle | Fast and efficient:<br>The counting machine can handle several days of manual inventory work in a matter of hours. Material label error-proofing mechanism, full induction recognition of material reels, real-time connection with the printer, pick up any reel of materials and instantly print the material information of the reel. | A longer period:<br>It takes a day or more for a document to be filled in, collected, and entered on the keyboard. This forces the production scheduler to set a delivery date for the user based on the inventory information from the previous few days or even a week ago. |
| Data transfer | To achieve data upload and synchronization: Intelligent cloud control, the pictures of the material reel ordered by each device every day will be automatically stored in the cloud database through the Internet.Engineers will optimize these pictures in the background, and then update the optimized data of various material reels to the database every month to improve the accuracy of material inventory counting. The longer the time, the higher the accuracy of the material reel will be, with an accuracy rate as high as 99.99%. There is no need to spend 3-5 days entering the material reel data in the factory. Users can use it directly, and the accumulated counting database is shared with all machines. With more data, the counting is more reliable and accurate. | Using the manual calculation method: The calculations need to be listed one by one according to the packaging list of the products. When calculating multiple products with semi-finished products nested in the middle, it will be a very cumbersome task, and it is difficult to achieve accurate and timely calculations. And the inventory must be checked before the inventory report can be obtained. |
| Accuracy | The accuracy rate is higher:<br>(1) Using X-ray imaging technology to detect production materials and obtain image information, and then quickly counting through the image algorithm independently developed by Sxray Raysolution, the actual quantity of materials can be obtained. At the same time, the number of materials can be classified and counted according to categories, and Equipment data information is connected to the customer's MES/ERP system, and data is exchanged in real time, greatly reducing the probability of inventory errors and ensuring accurate data.<br>(2) The operation of the X-ray counting machine is simple and easy to understand, more convenient, and the counted products are neat and orderly. Moreover, the X-ray counting machine automatically counts materials with high precision and zero error. It can work 24 hours a day without resting during work. | Information is prone to errors:<br>(1) When the workload is heavy, manual input often leads to problems such as transcription errors, typing errors, omissions, etc., resulting in a lot of ineffective labor and repeated work. This leads to inaccurate electronic component inventory information and increases corporate inventory.<br>(2) When time is limited, manual counting sometimes fails to place materials in an orderly manner. |

| Test parameter | The number of each shift | Per reel time | The total number of each shift |
|---|---|---|---|
| Traditional counting machine | Five people | 80s | 1800 reels |
| INLINE XC-3100 | 0 People | 15s | 4800 reels |