Application of **RFID** with **Production Daikin System**

Daikin Industries (Thailand) Ltd.
Production Engineering
Manufacturing innovation Group
Production Daikin System

• What’s PDS?

Things need think:
• No. of Model/Day
  • >200 Models/Day/Line
• Qt’y/Day
  • >Units/Day/Line
• Stock of part
• Quality assurance
Daikin Industries (Thailand) Ltd.

Deliver to customers

Selling most popular products at right time at a right place

**History of the Daikin Production System**

- **Lot Production**
  - 1970/11 ~
  - **D I L**

- **Mixed Production**
  - 1978/11 ~
  - Start PDS

- **Variable product and Variable volume Prod.**
  - 1991/ ~
  - Transfer PDS to DIT

- **High-Cycle Prod.**
  - 1999/ ~
  - **D I T**
  - (L/T : 3 days)

- **2002/ ~**
  - L/T :
  - 30days⇒14days

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What’s PDS need?

PDS is develop improved efficiency and more productivity on quality and safety.

- MUDA
- MURA
- MURI

Testing
Matching

Process Design

Environment

More productive

Paperless

Reduce electric

Safety awareness
What's PDS need?

PDS is develop improved more efficiency and more productivity on quality and safety.

What's PDS need?

MUDA
MURA
MURI
MUDAMURA
MURI

HOW TO IDENTIFICATION PRODUCT
Barcode or RFID

• Barcode
  – Need to print out data for each units
  – Barcode data is fix for model and running identified.

• RFID
  – Able to change or add data to memory any memory area.
## Compare Barcode vs RFID

<table>
<thead>
<tr>
<th>Strength</th>
<th>RFID</th>
<th>Barcode</th>
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<tbody>
<tr>
<td></td>
<td>• Able to record data (ex. Result etc.)</td>
<td>• Cost.</td>
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<tr>
<td></td>
<td>• Ease for automated design.</td>
<td>• Ease for change process.</td>
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<td></td>
<td>• No need to correct data from server in each working point</td>
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<td></td>
<td>• Green IT.</td>
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<tr>
<td>Weak</td>
<td>• Cost (equipment for industrial type).</td>
<td>• Unable to record data.</td>
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<td>• Process will fix need time for change.</td>
<td>• Use a lot of Paper.</td>
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<td>• Need to get any data from database for each working point</td>
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</table>
Why’s RFID

Daikin ’ll choose RFID for any process we want to get:

**Advantage**
- Machine able to read data from ID Tag directly
- Machine able to record result of testing directly
- Reduce using paper
- No need operator movement for read barcode.

**Disadvantage**
- **Process design**
  Unable to design conveyor continue cause on read/write RFID data process require stop conveyor.
- **Cost**
  Highly of cost for start but we can reduce variable cost.
System overview (RFID)

- **Application**
  - Identification
  - Program test
  - Record data result

- **Separate 3 part**
  - Preparation Data
  - Testing / Ass’y / Record result
  - Backup to database
System overview (RFID)

Preparation

- Pallet
  - Include RFID tag

Manufactured

Record Data

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System overview (RFID)

- **Preparation**
- **Manufactured**
- **Record Data**

Not need computer or any network for control process
System overview (RFID)

Preparation

Preparation Record Data

Manufactured

Record Data

Record all data

Data record to Database server

0000 0010 0020 0030 0040 0050 0060 0070 0080 0090 0100 0110 0120 0130 0140 0150 0160 0170 0180 0190 0200

0 2 0 3 1 3
0 1 0 1 0 1
2 0 1 0 0 9 0 8 1 3 3 0 0 0 A 3 1
2 0 1 0 0 9 0 8 1 3 4 3 0 0 0 3 0 4 5 1 0 5 0
2 0 1 0 0 9 0 8 1 4 5 7 5 0 4 4 4 4 4

Record Data to Database server
Sample
Identified
Matching
Conclusion

Quality
- Able to record any data to Tag
- Ease to control change information management

Productivity
- Reduce time for scan barcode

Environment

Cost
- Reduce cost for maintenance barcode scanner

Safety
- Reduce operator motion

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Daikin Industries (Thailand) Ltd.
Q&A

Thank You!