Soontech Annals

# IM05: 1000 Non-Box Item RAM

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## Features

- Has 1000 different codes/item types. Items are stored in slots inside shulker boxes inside a dropper.
- Random access. Can insert and retrieve items in constant time in any order.
- Compact. 22x10x19 volume.
- Maximum 55gt latency from call request to item.

**Figure 1: 1000 Non-Box Item RAM**

## Applications

- Dynamic code to item mapping.
- Linked-list dynamic bulk mapping storage. See explanation video on Youtube.

## General Description

The IM05 is able to store and retrieve non-box items with a specific decimal code. This may be useful for implementing dictionaries in an encoded dynamic sorting system. The device uses a 50-address item memory system with a hoppercart based slot cycling system to store and retrieve 1000 different items at near constant time.

## Device Specifications

**Table 1: Inputs**

| Name | Range | Description |
|---|---|---|
| Code Digit 1 | 1-10 | First digit indicating row. |
| Code Digit 2 | 1-10 | Second digit indicating column and slot. |
| Code Digit 3 | 1-10 | Third digit indicating slot. |
| Execute swap | Pulse | Executes item swap with the given settings. |
| Item Input | Item | Item to be inserted/retrieved. |

**Table 2: Outputs**

| Name | Range | Description |
|---|---|---|
| Item Output | Item | Output for swap orders. |

**Table 3: Device Specifications**

| Parameter | Min. | Typ. | Max. | Unit | Conditions |
|---|---|---|---|---|---|
| Latency | 36 | - | 55 | gt | From call request to item. |
| Hopper Count | | 88 | | Hoppers | |
| MC Version | 1.17 | 1.19.3 | - | MCV | Latest version at time of writing: 1.21.4 |
| Dimensions | | 22 x 10 x 19 | | Blocks | |

## Testing Data

**Table 4: Executed Tests**

| Test | Result |
|---|---|
| Insertion | Items were successfully inserted in all positions. |
| Retrieval | Items were successfully retrieved from all positions. |

## Download Information

**Table 5: Download Information**

| Identifier | MC | File | Description |
|---|---|---|---|
| IM05 | 1.19.3 | IM05_1000_Non-Box_Item_RAM.litematic | Schematic of device. Includes dummy item storage. |