ABLE Pick Pick-to-light
(AT707-A-4K-RF)
User Manual

V 1.0

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by

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Introduction

ABLEPick is an advanced paperless picking system providing an innovative, streamlined and cost-effective Pick-to-light solution to simplify the order fulfillment process in warehouse or distribution center. ABLEPick use a state-of-the-art and light-directed technology to maximize the picking productivity, speed and accuracy in different picking operation.

Products Features

- Ethernet architecture, follow up the standard TCP/IP communication protocol.
- CABLELESS pick tags.
- Versatility in different operating modes configuration.
- Easy to install, maintain and upgrade.
- Wide operating temperature range (from –25°C to 40°C).

Benefit

- Paperless picking process.
- Streamline the order fulfillment process.
- Increase picking productivity dramatically.
- Accuracy assured: virtually eliminate picking error, below 0.1%.
- Easy to use: picker can usually be trained in less than 1/2 hour.
- Strengthen management control: on-line picking data control, easy to prompt the material shortage.

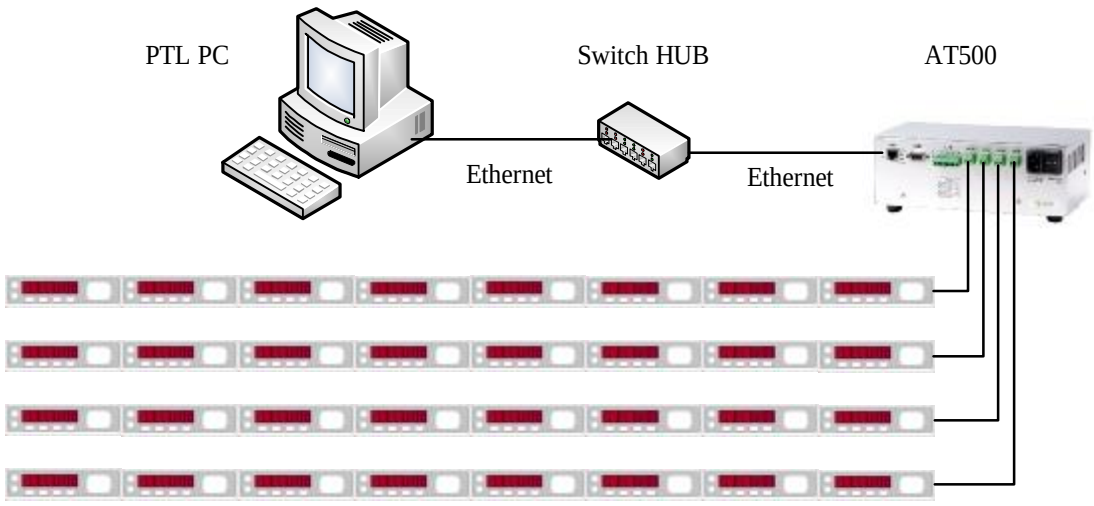


Figure ABLEPICK Architecture

. PICK-TO-LIGHT OPERATION

Work flow of pick-to-light system: Below simply describe the basic operation

Data entry

Picking list files can be downloaded to the LAN server or PC from WMS/MIS host. These files will be read and merged into pick-to-light picking list database.

Control and communication

Pick-to-light software will monitor picking flow and offer real-time information on the screen.

Light up

Different models of picking tags light up to indicate what order, which location and how many pieces to be picked.

Pick and confirm

The picker picks the quantity as tag shows or modifies the quantity directly from tag, then push the button to confirm this action.

2 Complete

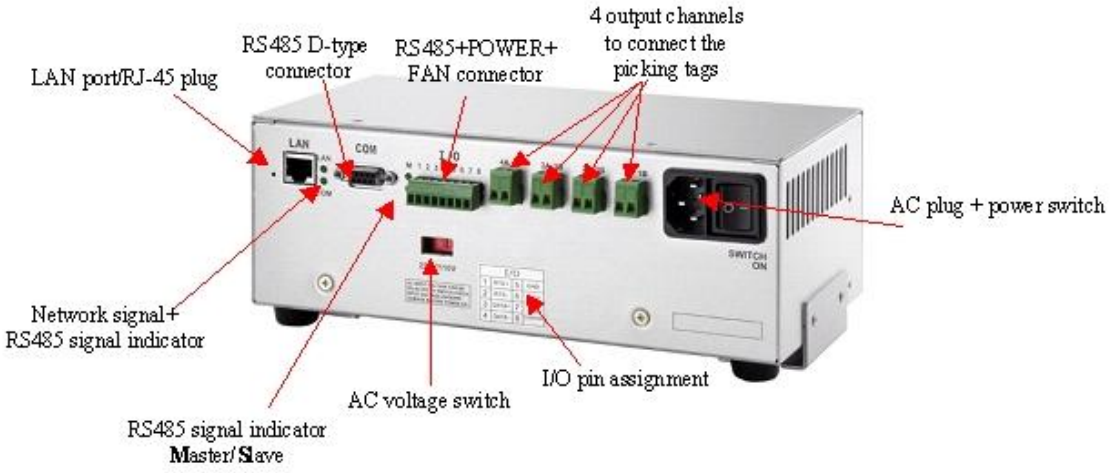
Completion indicator will light up and buzz after all jobs in a zone are done. Push the button to confirm this action and move this order to the next available zone.

ABLEPick Hardware

TCP/IP controller

AT500

TCP/IP controller is a data transmission medium between picking control PC and all the



Specifications:

- To host computer communication interface :
  IEEE 802.3 Base band (Ethernet)
  RJ-45 Phone-jack connector x 1
  Transmission speed: 10 / 100 Mbps
  Communication protocol : TCP/IP

- Input Voltage and current: AC 115/230 V, 50/60 Hz
- Power supply : Maximum 320 Watt
- Temperature : 0 °C to 50 °C operating, -20 °C to 70 °C storage
- Humidity: 90% non-condense
- Dimension: Aluminum case 250(L)*130(W)*100(H)mm

Pin assignment:

RS485 D-type 9 pin female connector

pin	Defin.
1	-
2	GND
3	DATA1-
4	RTS-
5	-
6	-
7	-
8	DATA+
9	RTS+

I/O port pin assignment

pin	Defin.
1	RTS+
2	RTS-
3	DATA+
4	DATA-
5	GND
6	+12V /3A
7	Fan switch, 45 C auto power on
8	

AT500's IP configuration

AT500's default IP address is "10.0.50.100" and sub-mask is "255.255.0.0". You can use ATOP's tool "MONITOR.exe" to know and re-configure each AT500's IP address.

Connection to TCP/IP controller (AT500)

Since AT500 has no DHCP function, so its host control PC/NB need to assign one IP address which have to be within the same domain as the AT500. Then you can create one TCP connection to connect it. AT500's TCP port is 4660.

Picking Tag : AT707-A-4K-RF

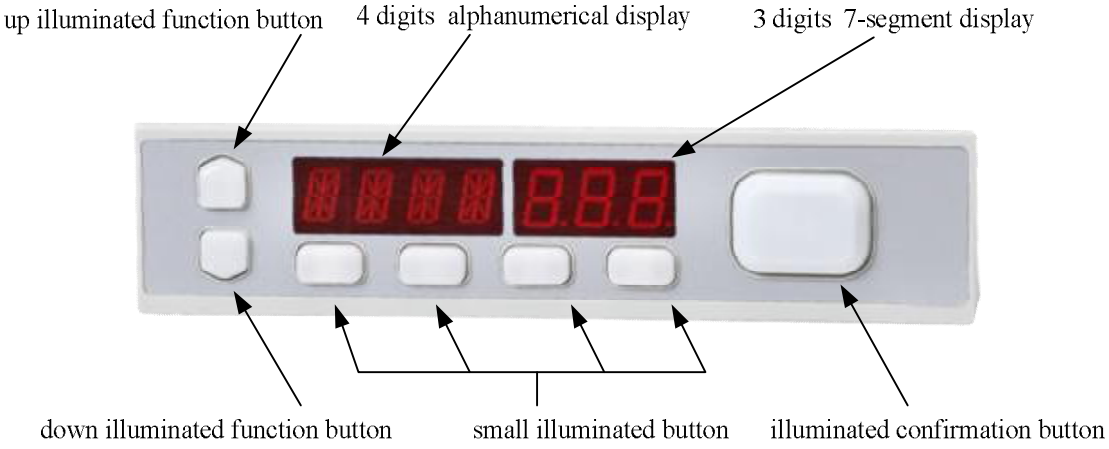
Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



AT707-A-4K-RF is an advanced picking device which can be able to implement less or no zone boundary within order fulfillment operation for pick-by-light or put-by-light flow, called zoneless picking light. AT707-A-4K-RF's communication protocol is fully compatible with Atop's other cableless pick-to-light products.

AT707-A-4K-RF has 4 illuminated buttons with different LED color (RED, GREEN, BLUE and YELLOW), each button could represent an picking order for pick-by-light operation flow or a sorting product item for put-by-light operation flow. In other words, with this design, AT707-A-4K-RF allows multiple orders for pick-by-light or multiple items for put-by-lights be able to working concurrently within the same area.

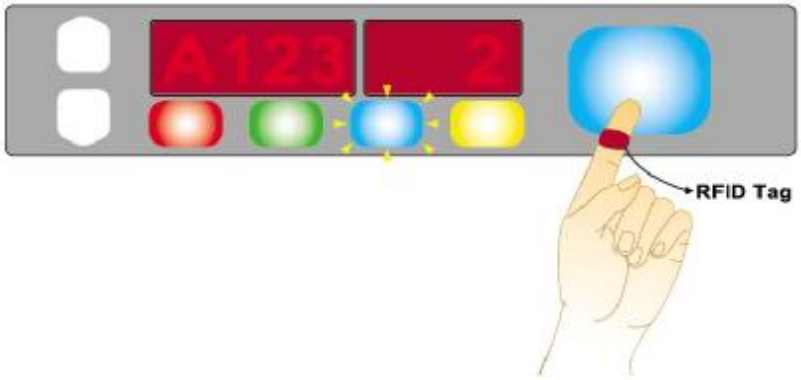
Each button has 3 data buffers. 2 data with the arrows status is used for picking indication,

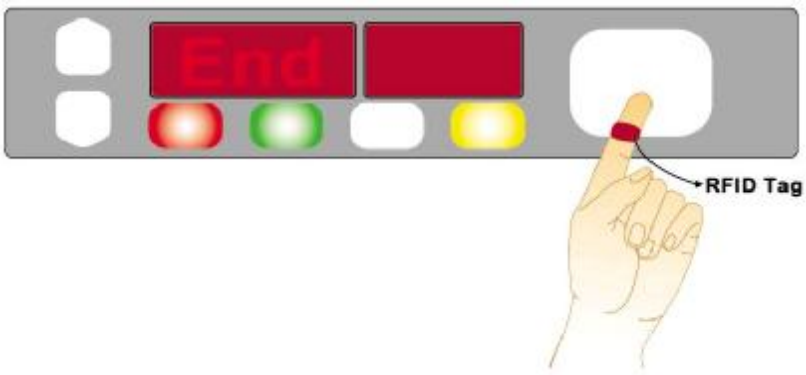
the third one is an extra prompt buffer. Once this prompt buffer has been stored message, then this message will auto-show up for 2 seconds next to the previous picking data is confirmed back.

Moreover, AT707-A-4K-RF's another intelligent feature is the integrated design with RF reader, all the data withdrawal from buffer and confirmation will be implemented by the RF technology to control the accuracy, especially when implementing the multiple orders or multiple items are working concurrently within the same area.

User can appoint one RF tag's UID code (unique ID) to each button of AT707-A-4K-RF, Then each button could have its corresponding picking data to have linkage with its specific RF tag's UID during picking operation. In other words, all the pre-sending picking data need to recognize by its corresponding UID tag, then it can be able to trigger to work.

User use the RF tag by “finger ring type” to push the confirmation button, when RF reader catch and recognize the tag’s UID code, it will auto-retrieve its corresponding button’s data from buffer to show on the 7-digit LED display, meantime, its corresponding button’s light could change to different status to distinguish with the other standby buttons and confirmation button also has the same LED color as the small button tell user which color is working on.





User needs to use the same RF tag to push the confirmation button again to confirm this picking (double hits). Then the small button will be off to mean its picking is completed. And the message on the prompt buffer will be shown up for 2 sec (such as "End"…etc).automatically.

With the RF design, AT707-A-4K-RF allows system software to track each pick back to a specific picker, by this way, each picker's productivity could be countable accurately. And its Multi-color LED identification increases operating flexibility and productivity by allowing concurrent operating in one area.

AT707-A-4K-RF also uses different beep sound to distinguish different RF reading in different states, such as error reading, no reading, or first data withdrawal and second data confirmation.

Large illuminated confirmation button.

AT707-A-4K-RF's confirmation button has 6 colors LED design, which are RED, GREEN, AMBER, BLUE, PURPLE and INDIGO individually. The default color is RED. LED's color can be configured by software, which can be stored in the EEPROM.

Two up/down count buttons

The left side of AT707-A-4K-RF has two small illuminated buttons, up-count(function key) with WHITE LED, and down-count (shortage) buttons with WHITE LED, too. Push shortage (down-count) button can acknowledge the shortage situation or by adjusting up-count/down-count button to present partial picking process. Both different behaviors could be configured by software.

AT707-A-4K-RF's power on procedure

Step1: The 7-segment will show "8" from 1st digit to last digit sequentially(from right to left).

Step2: 6 illuminated buttons include 2 arrows and 4 small buttons will flash once.

Step3: The confirmation button's LED light will change color: RED, GREEN , BLUE sequently.

Step4: Show the F/W version of the tag. For example: "U1.0".

Step5: Show the address ID of the tag. For example: "[001]" (this is a decimal number).

Step6: Show the **tag mode configuration** of the tag. The default tag mode configuration value is 115. in decimal.

Address configuration via the buttons directly.

The same as the other light model with three buttons

Self-test function enabled

The same as the other light model with three buttons

AT707-A-4K-RDIF hardware

Specification

1) Has two pairs of magnetic connectors to connect easily to main transmission bus with stainless stuff. Two pairs of connectors are the redundancy design to enforce the connection

2) 7-digits LED display. The first 4 digits are alphanumerical display, the left 3 digits are 7-segment display.

3) 2 up/down illuminated function buttons. Both Up and Down arrow buttons are WHITE color.

4) One large illuminated confirmation button with 6-color LED.

5) 4 small illuminated button with different LED color by RED, GREEN, BLUE and YELLOW from left to right. .

6) Each small illuminated button has 3 corresponding data buffer. 2 is for picking data, another extra is called prompt buffer. It will be displayed automatically hereon the picking data when it has been stored in.

7) RF reader can be configured to be enabled or disabled.

8) Power requirements: DC 12V ; Max:200mA

9) Operating temperature: 0 °C to 40 °C

10) Dimension : 200(L) * 45 (W) * 30(H) mm