Advanced Applications

Printing in Standalone Mode

Functional Description

Standalone mode means the printer can be operated without it needing to be connected to a host computer. For this purpose, a PC is used to store the print job on a CompactFlash card (CF card). After this card is plugged into the card slot at the printer, the operator can start the print jobs on demand. For this, he uses the printer control panel or a keyboard connected to the printer. Variable data can also be entered via the control panel or the external keyboard.

The standalone mode can always be accessed from the „normal“ printer operation (with online/offline mode and message mode). To do so, press the *Online* and *Esc* buttons simultaneously.

It is helpfull to imagine two consoles, between which can be switched by pressing *Online+Esc*.

Console „Print control“		Console „Standalone“
Online mode Offline mode Message mode Parameter menu	⟷ Online + Esc	Selecting print tasks Inserting field contents Inserting print amounts Starting print tasks Fading in error messages

Tab. 1: Operation modes, depending on the activated console.

Features

Standalone mode in brief:

- Printing without computer connection
- Data entry via control panel or keyboard
- Reading print job from the CF card
- Entry or selection of field content
- Updating Firmware from CF card

Requirements

To be able to print standalone, the following is required:

- Printer of one of the types: 64-xx, AP 5.4, AP 7.t, DPM or ALX 92x.

  ➠ 64-xx, DPM and ALX 92x must be fitted with *Firmware* Version 3.0 or higher! Furthermore, these printers must be fitted with *CPU boards* No. A2293 (without Ethernet) or A2292 (with Ethernet)!

- CompactFlash card
  For order number, see the Plugin Card Manual, topic Available Cards
- PC or laptop with card reader
- Options board (not for AP 5.4 and AP 7.t)
  The options board is required for printers of the types 64-xx, DPM and ALX 92x to connect the keyboard. The order number for the options board can be found in topic section “Spare parts“, paragraph “Accessories”.

- Optional: PS/2 keyboard
  On request, a keyboard can be connected to the printer. This considerably simplifies entry of variable data, especially when dealing with text.

Keyboard type	Order #
PS/2 keyboard without numeric keypad, German layout	A4056
PS/2 keyboard without numeric keypad, US layout	A4054
Numeric keypad, German layout	A4219

Tab. 1: Order numbers for PS/2 keyboards.

Keyboard

Compatibility: Many of the so-called AT-compatible keyboards with PS/2 connections can be used. Most keyboards with 101/2 keys (incl. Windows keys) belong to this category.

The compatibility depends on the number of keyboard scancodes. If the keyboard uses the same set of scancodes as defined for the extended AT keyboard, the keyboard can be used.

➠ Before first use, check if the intended keyboard really works with the printer.

Selecting files from CF card

Selected may be files with the extensions „*.FOR“ (print task) or „*.S3B“ (firmware), if they are stored on CompactFlash card in the folder „\FORMATS“. The file will be executed after selection.

Printer button	Keyboard key	Meaning
Feed	Cursor Up	Previous file
Cut (or Apply)	Cursor Down	Next file
Online	Enter	Confirming the selection
Esc	Esc	Cancel

Tab. 2: Applicable keys for file selection.

Executing print tasks

All input fields are polled, which are defined as such in the print job (see section Example Application on page 6). Next, the print quantity is requested. As soon as the print quantity is confirmed, the print job is executed. From now on, all information about the job is displayed in the "Print control" console. While the print job is processed, it is started newly in the „Standalone“ console. The input fields are polled again, with the previous entries as default.

➠ Press the *Esc* button to go back to the file selection.

Printer button	Keyboard key	Meaning
Feed	Cursor Up	Digit +1
Cut (or Apply)	Cursor Down	Digit -1 (the predecessor of 0 is 9)
Online	Enter	Enter
Esc	Esc	Delete/Cancel

Tab. 3: Applicable keys for entering of numbers.

➠ It's also possible to enter a single „* “ for the print quantity. This makes the print quantity „endless“.

Executing firmware files

Files with the extension ".S3B" are firmware files. Selecting a firmware file means starting a firmware download. As this is a fundamental intervention to the system, firmware files are not executed immediately. The query "Firmwaredownload ? No/Yes" demands explicit confirmation of the operator.

➠ The same firmware file remamed to the extension „.FOR“ is executed without querying.

Printer button	Keyboard key	Meaning
Feed	Cursor Up	Switching between Yes/No
Cut (or Apply)	Cursor Down	Switching between Yes/No
Online	Enter	Confirming the selection
Esc	Esc	Cancel

Tab. 4: Applicable keys for a firmware download.

Automatic file execution

If the file "DEFAULT.FOR" (file name not case sensitive) exists on CF-card in the folder "\FORMATS", this file is executed automatically at system start. If the file "\AUTOSTRT.FOR" is also existing (in the root directory), this file is executed first.

Additionally usable keys on a keyboard

With an external keyboard connected, the printer can be operated without touching the buttons of the operation panel. The function keys F5-F8 can be used alternatively to the operation panel buttons:

Keyboard key	Printer button	Meaning
Ctrl+Del		Deletes the current print job (works in both consoles)
Ctrl+Home		Jump to the start (e.g. start of a file selection list)
Ctrl+End		Jump to the end (e.g. end of a file selection list)
Ctrl+Ins	Online+Esc	Change between Standalone and Printer control console
Backspace		Deleting backwards
F5	Cut (resp. Apply)	Same function as printer button
F6	Online	Same function as printer button
F7	Feed	Same function as printer button
F8	Prog/Esc	Same function as printer button

Tab. 5: Those keys can only be used, if a keyboard is connected to the printer.

Insert Input Field in Print Task

Input fields can be defined in the following Easy Plug field types:

- Text field
- Counting field
- Barcode field

These field types can be defined through the following Easy Plug commands: YT, YN, YB, IDM, PDF, MXC, CBF, YC, YS, YG.

Using a special syntax it is made clear in these commands that the text dealt with here is not a fixed text, but text requested at the time of implementation.

❍ Further information on the input field syntax can be found in the description of the respective command in the Easy Plug Manual, topic section Description of commands.

Example Application

Creating a Print Task

1. Generate two text files with the content provided in the tables below.

   ➠ Tip: Cut out the content using the Acrobat Reader text selection tool and copy it to a text file.

File “TEST1.FOR”
#!A1#IMN100/60#ER #J40#T5#YT107/0///Simple test for #J30#T5#YN100/0/60///STANDALONE Mode #Q3/

Tab. 6: Example of an Easy Plug print task without input fields.

File “AVERY.FOR”
#!A1#IMN100/60#ER #J40#T5#YN100/0/60///$<Color:>,Lightred #J40#T5#YN100/0/60///$<Color:>,Lightred #J20#T5#YT107/0///$<Article number:>, #J10#T5#YT107/0///Fixtext#G #Q3/

Tab. 7: Example of an Easy Plug print task with input fields.

Preparing the CF Card

2. Create a directory on the CF card called “\FORMATS”.
3. Store the two text files as “TEST1.FOR” and “AVERY.FOR” on the CF card in the directory “\FORMATS”.

   ➠ The file ending must be “*.FOR”!

Standalone Printing

4. Switch off printer.
5. Insert CF card into the printer’s card slot.
6. Turn on printer and switch to online mode.
7. Simultaneously press the Online and ESC keys.

   The first file on the CF card is displayed:

   ```
   Choose a file
   AVERY      .FOR
   ```

8. Call up the file “TEST1.FOR” by pressing the Cut or Feed keys.

   ➠ On DPM or ALX 92x , please press the Apply instead of the Cut key!

9. Confirm selection by pressing the Online button.

   Now you are asked for the quantity of labels to be printed:

   ```
   Enter quantity
   3
   ```

   Quantity 3 appears as default, as this was already preset in the print task. To increase the quantity to 10, for instance, please perform the following procedure:

10. Press the ESC key. This erases the 3.

11. Press the Feed button in order to incrementally increase (up to a max. of 9) the quantity of labels to be printed.

    ➠ Quantity 0 = infinite printing!

12. Press the Online button to move forward by one position. Should you wish to enter a number with two or more digits, simply increase the second digit using the Feed button. Should the number only have one digit, press the Online button again.

    The printer will now print the stipulated number of labels.

AVERY.FOR

In case of the “AVERY.FOR” file, this works somewhat differently. Once the file is called up, the following is displayed:

```
ONLINE        1 JOBS
Color: Lightred
```

In the second line the printer will ask for the content for the first data field. “Color” is a prompt and therefore not printed. The preset content of the print task is called “Lightred”.

- *Without keyboard* you can enter the desired text in characters. Entering letters works in the same way as digit entry (see example “TEST1.FOR”). Using the Cut or Feed buttons, you can scroll through the available set of characters until the required character appears. Use the Online button to move forward by one position. After entering the last character, press the Online button twice.
- *With a keyboard* you can, after the input prompt “Color:”, simply enter a different content.

  ➠ The entry may only have a length that ensures the printout does not extend over the label edge! - otherwise a printer error message is displayed!

  The next input field is displayed and then the next etc., until all input fields have been processed.

  At the end you may change the quantity of labels to be printed if required.

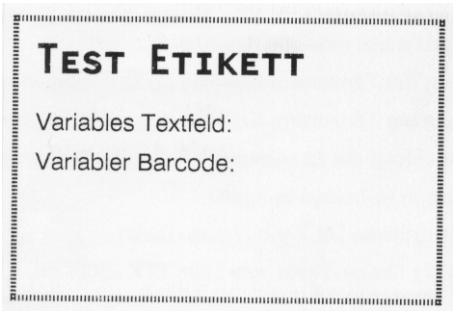
Print Masks & Variable Data

It is possible to store print jobs on CF card, which contain only a print mask, that is the invariable part of the print data. To print the complete layout, only the variable data has to be transmitted via interface, the print mask is loaded from CF-card.

❍ Find a description of the #YV command, which is required to declare variable data, in the Easy-Plug manual, topic section Description of Commands.

Example

The example file „TEST.FOR“ contains the invariable data as well as two fields (lines 13 and 15), into which later the variable data are filled (see Tab. 8:).

	Contents of „TEST.FOR“	Printing
1	#!A1	
2	#IMS80/60	
3	#ERN	
4	#T3#J5	
5	#YR3//1/75/50	
6	#T7#J45	
7	#YT109////Test Etikett#G	
8	#T7#J35	
9	#YT104////Variables Textfeld:#G	
10	#T7#J28	
11	#YT104////Variabler Barcode:#G	
12	#T48#J35	
13	#YT107/D0///$00,15	
14	#T7#J10	
15	#YB6/D0/10/5///$01,10	
16	#Q0	
17	#G	

Tab. 8: Example print mask.

Proceeding to tryout the example:

1. Create file „TEST.FOR“ and store it on CF card.

❍ See in paragraph Preparing the CF Card on page 6.

2. Insert the CF card into the printer card slot. Power-on the printer.
3. Press the Online+Esc keys. Select file „TEST.FOR“.

   After that, the printer prints a label which contains only the print mask.
4. Send file „VAR_DATEN.TXT“ to the printer interface.

   The printer prints now seven labels, the last four of which show different contents (see Tab. 9:).

	Content of VAR_DATEN.TXT	Printing
1	#!A1	
2	#YV00/-- Start --#G	
3	#YV01/1234567890#G	
4	#Q3#G	
5	#YV00/First Text#G	
6	#YV01/5265419874#G	
7	#Q1#G	
8	#YV00/Second Text#G	
9	#YV01/4444223321#G	
10	#Q1#G	
11	#YV00/Third Text#G	
12	#YV01/0987654321#G	
13	#Q1#G	
14	#YV00/Forth Text#G	
15	#YV01/4445556687#G	
16	#Q1#G	

Tab. 9: This text file contains the variable part of the data, which is sent via interface to the printer. The right side of the table shows the first (top) and the last (bottom) printing of the example printjob.

Transmitting Data via Ethernet

Requirements

Knowledge

➠ WARNING! This section requires the network administrator knowledge! If you do not have this level of knowledge, please consult your network administrator for assistance!

Hardware

Printer	Hardware requirements
AP 4.4	Ethernet connection *not possible*!
AP 5.4	Has an integrated Ethernet interface
AP 7.t	
64-xx	CPU board A2292 with integrated Ethernet interface
DPM	
ALX 92x	

Tab. 1: The printer must fulfil the following requirements if it is to be connected to an Ethernet.

- Ethernet cable: must have quality *Cat. 5E* and be shielded.

Software

- 64-xx, DPM, ALX 92x: Firmware Version 3.0 or higher
- AP 5.4, AP 7.t: All firmware versions
- Network protocol: TCP/IP

Integration of Ethernet Interface

The Ethernet interface of the printers is layed out as 10/100 Base T. The transmission speed is set by autonegotiation. LEDs are located above the RJ 45 plug, showing the network situation (see Fig. 1).

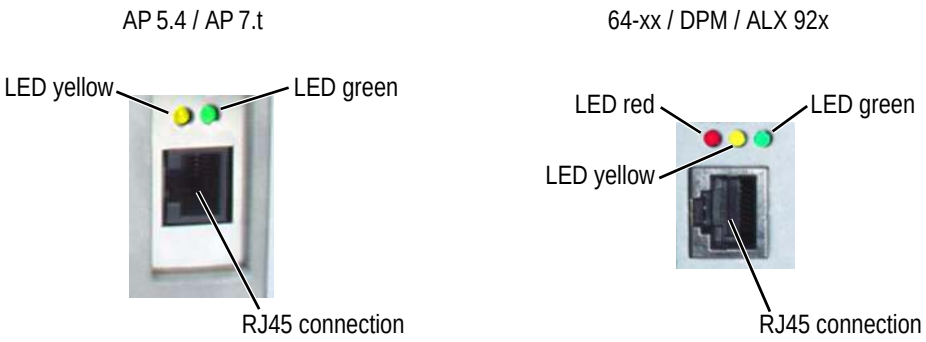


Fig. 1: Left: Display LEDs AP 5.4 / AP 7.t, right: Display LEDs 64-xx / DPM / ALX 92x.

Printer	LED	Red	Green	Yellow
AP 5.4, AP 7.t	*lights up*	----	High transmission-speed (100 Mbit/s)	Printer is connected to network
	flashes	----	----	Network traffic

Tab. 2: Functions of the network display LEDs.

Printer	LED	Red	Green	Yellow
64-xx, DPM, ALX 92x	*lights up*	Printer is connected to network	High transmission-speed (100 Mbit/s)	
	flashes	----		Network traffic

Tab. 2: (Contd.) Functions of the network display LEDs.

MAC Address

An internationally unique MAC (Media Access Control) address is required for Ethernet operation. It consists of 6 bytes and is usually separated by colons or hyphens (hexadecimal, e.g. 00:0a:44:02:00:49 or 00-0a-44-02-00-49). The first 3 bytes are constant 00:0A:44 (Avery code), the last 3 bytes vary for each device. The product manufacturer is responsible for the allocation of the MAC addresses.

IP Address

In the printer software a TCP/IP protocol stack is implemented, i.e. for network purposes the device requires an IP address along with the MAC address. IP-addresses are always displayed as 4 bytes separated by dots (e.g. 192.168.1.99). IP addresses are assigned by the network operator, as a rule the network administrator.

➠ MAC and IP addresses originate from different protocol layers and are generally independent of each other.

❍ Further information about TCP/IP can be found in the abundance of literature on the subject.

Setting the IP Parameters

For IP parameter settings, the following alternatives apply:

Fixed setting	DHCP server allocation
The following values have been preset: *IP address*: 192.168.1.99 *Net mask*: 255.255.255.0 *Default gateway*:0.0.0.0	The following are requested from a DHCP server: *address, net mask, default gateway* To assist the system administrator, the DHCP server is provided a device name on request, which consists of a combination of printer type + 3 digits from the MAC address. (e.g. AP_5.4___300dpi_020049)

Tab. 3: The IP parameters can be set at the printer or be requested from a DHCP server.

➠ Connection to a name server is not required.

Here you can set the IP parameters in the printer parameter menu:

Menu	Parameter	Description
INTERF. PARAM. >ETHERNET PARAM.	IP addressassign	Here, please set “fixed IP address” or “DHCP”.
	IP address Net mask Gateway address	IP parameter input fields, in case “fixed IP address” was set for the address assign type.

Tab. 4: Setting IP parameters in the printer menu.

➠ WARNING: The address allocation for each device must be clear and unambiguous. Ask your network administrator for assistance!

Transmission via Raw Socket Interface

Printing data can be transmitted via a parameterisable socket interface (TCP server socket on port number > 1024).

This protocol is supported by

- all Unix derivatives; a connection similar to that of terminal servers can be established.
- Windows 2000, Windows XP

A software package from external providers is required for Windows 95, Windows 98 and Windows NT (e.g. Serial/IP by Tactical Software, http://www.tacticalsoftware.com).

In this way you can set the Port address in the printer’s parameter menu:

Menu	Parameter	Description
INTERF. PARAM. >ETHERNET PARAM.	Port address	Here you can select the port number of the service in section 1024-65535
INTERF. PARAM. >EASYPLUGINTERPR	Interface	Here a *TCP/IP socket* must be set in order to receive printing data at the set port number.

Tab. 5: Setting the port number for the TCP server socket. The setting must correspond to the operating system selected on the PC.

Transmission via LPD Server

Printing data can be transmitted to the printer via the LPR/LPD (Line Printer Daemon) protocol (“BSD Spooler”).

For this purpose, set your printer parameters in the following way:

Menu	Parameter	Description
INTERF. PARAM. >EASYPLUGINTERPR	Interface	Please select *LPD server* to receive printing data via LPD.

Tab. 6: Setting LPD server parameters. The setting must correspond to the operating system selected on the PC.

This protocol is supported by

- all Unix derivatives
- Windows NT, Windows 2000 und Windows XP

➠ The print queue of the host must be named „lp“!

A software package from external providers is required for Windows 95 and Windows 98 (e.g. Windows LPR Spooler, http://ich2www.ich.kfa-juelich.de/wlprspl/)

Troubleshooting

The following should be checked if a problem occurs:

- *Ethernet connection*: The yellow LED belonging to the printer network socket must be illuminated. If this is not the case, possible sources of error are:
  – that the network is not connected to the outlet.
  – ISDN outlet: Erroneous, the network cable was connected to an ISDN instead of a network outlet. Both outlet types do not differ mechanically.
  – an incorrect cable (ISDN cable?) is used to connect the printer to the network outlet.
  – a defective hub/switch.
  – a defective printer board.
- *IP parameter*: the defined parameters or parameters set via DHCP are displayed in the “Printer Status” printout. A “ping” to the set IP address must return an echo. This also works if a different interface is set in the Easy Plug Interpreter parameter.
  Possible source of error: Incorrect configuration of a network participant.
- On the printer, either “TCP/IP socket” or “LPD server” must be set in the *Easy Plug Interpreter parameter*.

Verifying Bar Codes with OLV (64-xx)

➠ This chapter applies only to 64-xx printers.

Intended Purpose

64-xx printers are prepared for the connection of an online verifier (OLV). An OLV is a bar code scanner, which is able to rate the scanned bar code in quality (according to ANSI grades). The OLV is placed before the printer, so that it can read the bar codes directly after printing [1].

➠ Only the OLV „SV100“ by RJS can be used.

➠ Only bar codes can be verified, which are printed with a rotation of 0° or 180°.

System Requirements

Printer

- 64-04, 64-05, 64-06 or 64-08.
- Options board A2119 (2nd serial interface), installed in the printer.

OLV

- SV100 with power supply, interface cable and mounting plate.

Part	Order # (RJS)
Scanner/OLV	002-7973
Installation kit with PC software and power supply	002-8107
Mounting plate with scanner bracket	002-4608

Tab. 1:Order numbers for SV100 and accessories at RJS.

- Firmware version: X302
- Manufacturer: RJS (www.RJS1.com)
- Serial data cable (1:1) to connect printer and OLV.
- For use outside of the USA, a country specific power cable is required.

Cable	Order # (Avery)
Serial cable	A1207
Power cable euro norm	90600
Power cable UK	A0635
Power cable switzerland	A0842
Power cable denmark	A3598

Tab. 1:Order numbers for cables at Avery Dennison.

Setup

1. Place the printer on the OLV mounting plate as illustrated.
2. Connect the OLV to the Com2 interface of the printer.

   ➠ After the printer has been switched on, initialization commands are sent to the OLV. Therefore, the OLV has first to be switched on. These initialization commands switch on the laser beam (among other things).

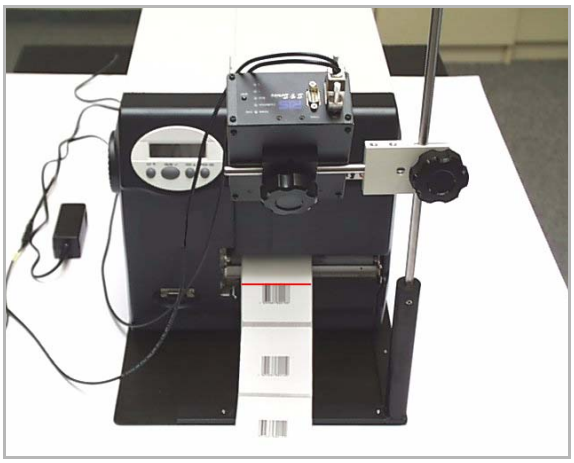
   ➠ The sending of the initialization commands can be repeated at any time by pressing the Feed and Esc buttons (at the printer) simultaneously. This may be necessary, if the OLV was switched off.
3. Switch on the OLV.
4. Switch on the printer.
5. Set the printer parameter *INTERF. PARAM. > COM2 PORT > Function Option* to *Barcode OLV*.

   The data transfer parameters of the interface are automatically set to the default values required by the SV100 (115 200 baud, 8 data bits, no parity, 2 stop bits, hardware handshake).
6. Position the OLV so, that the distance between laser beam (on the label) and printhead is as low as possible.

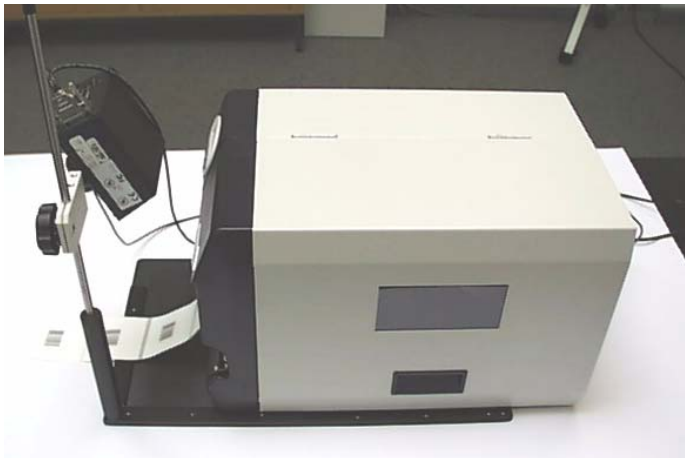
❍ For detailed information on setting the OLV please refer to the SV100 manual.

7. Set the parameters in the *OLV PARAMETERS* menu (at the printer).

❍ Information about the parameters can be found in topic section Info-printouts and Parameters.



[1] 64-05 with OLV - front view.



[2] 64-05 with OLV - side view.

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