



# Technical Data

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## Application, Device Types

### Application

- Monotone printing of label stock for thermal and thermotransfer processes
- Printing on different materials, e.g. cardboard or self-adhesive labels, which are suitable for thermal- or thermotransfer printing
- Processing roll and fan-folded material
- Resolution: 8.0 or 11.8 Dot/mm (203 or 300 dpi)
- Print speed up to 200 mm/sec (8"/s)
- Print width:
  - AP 5.6: up to 168 mm
  - AP 5.4: up to 105 mm
- Interfaces: RS-232, USB,, Ethernet, and connection for foot switch

### Device types

AP 5.4 and AP 5.6 are available in 4 versions:

Basic	<p>AP 5.4/5.6 equipped with serial, USB and Ethernet interface and SD-card slot. Possible upgrade to „peripheral“ version.</p> <p>The following options can be integrated:</p> <ul style="list-style-type: none"> <li>• Reflex sensor (top and/or bottom)</li> <li>• I/O board (signal interface and additional serial interface)</li> </ul>
Peripheral	<p>Like the AP 5.4/5.6 basic, but with capability to add the following options:</p> <ul style="list-style-type: none"> <li>• External rewinder (for AP 5.4 only)</li> <li>• Cutter</li> </ul>
„Basic dispenser“ or „peripheral dispenser“	<p>AP 5.4/5.6 with additional built-in internal rewinder. In connection with an optional dispensing edge, this printer can also be used as a dispenser. If the dispensing edge is replaced by a deflection plate, the printed labels are not dispensed, but rewound together with the backing paper.</p>

## Options

### Internal Options

...should be factory-fitted or installed by a service engineer:

- *Reflex Sensor Kit*: Light barrier fitting that apart from the transmission sensor, also contains a reflex sensor.
- *Label sensor for short labels*: Recommended for label length < 30 mm.
- *Internal rewinder kit*: To retrofit the internal rewinder; contains the rewinder as well as the driver board and material guide
- *I/O board*: RS- 422/485 interface, signal interface

### External Options

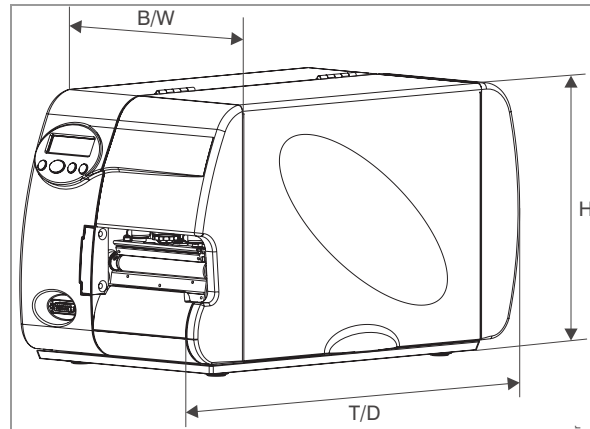
...do not require any special alterations to the printer:

- *Cutter* (required printer: AP 5.4/5.6 peripheral)
- AP 5.4 only: *(External) rewinder* for material rolls with 38 mm (1.5"), 75 mm (3") or 100 mm (4") cores (required printer: AP 5.4 peripheral)
- *Keyboard* for standalone operation
- *Foot switch* for foot-operated label dispensing
- *Dispensing edge* (required printer: AP 5.4/5.6 „basic“ or „peripheral“ with internal rewinder)

## Technical Specifications

### Dimensions

#### Measures



[1] Dimensions of the AP 5.6 and AP 5.4 (H=Height, W=Width, D=Depth).

Printer	Measures (H x W x D)
AP 5.4	272 x 260 x 462 mm
AP 5.6	272 x 337 x 462 mm

[Tab. 1] Measures

#### Weight

Printer	Weight
AP 5.4/5.6	14 kg
AP 5.4 basic / peripheral	14 kg
AP 5.4 dispenser / internal rewinder	16 kg

[Tab. 2] Printer weight

## Performance Data

Print Technology      Thermodirect and thermotransfer printing

Printer Head Type      • “Flat Head” type (ceramic thin film flat head)  
                                  • 8.0 dot/mm (203 dpi)  
                                  • 11.8 dot/mm (300 dpi)

Printhead  
Characteristics

Printer	Resolution (Dot/mm)	Resolution (dpi)	Print- speed (mm/s)	Print- speed (Inch/s)	Max. printwidth (mm)
AP 5.4	8.0	203	50-200	2-8	104
	11.8	300	50-150	2-6	105.7
AP 5.6	8.0	203	50-200	2-8	168
	11.8	300	50-150	2-6	

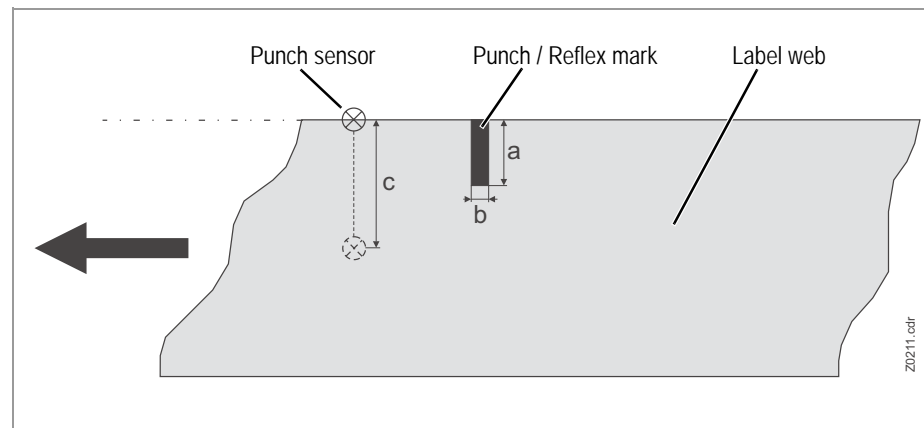
[Tab. 3] Important printhead data.

Label sensor

Sensor type	Setting range (Size c)	Punch length (Size b)	Punch width (Size a)
Transmission sensor (Standard)	0–60 mm	0.8–14 mm	min. 4 mm
Reflex-sensor (optional)	6–66 mm	4 mm (recommended)	12 mm (recommended)

[Tab. 4] Required punch measures.

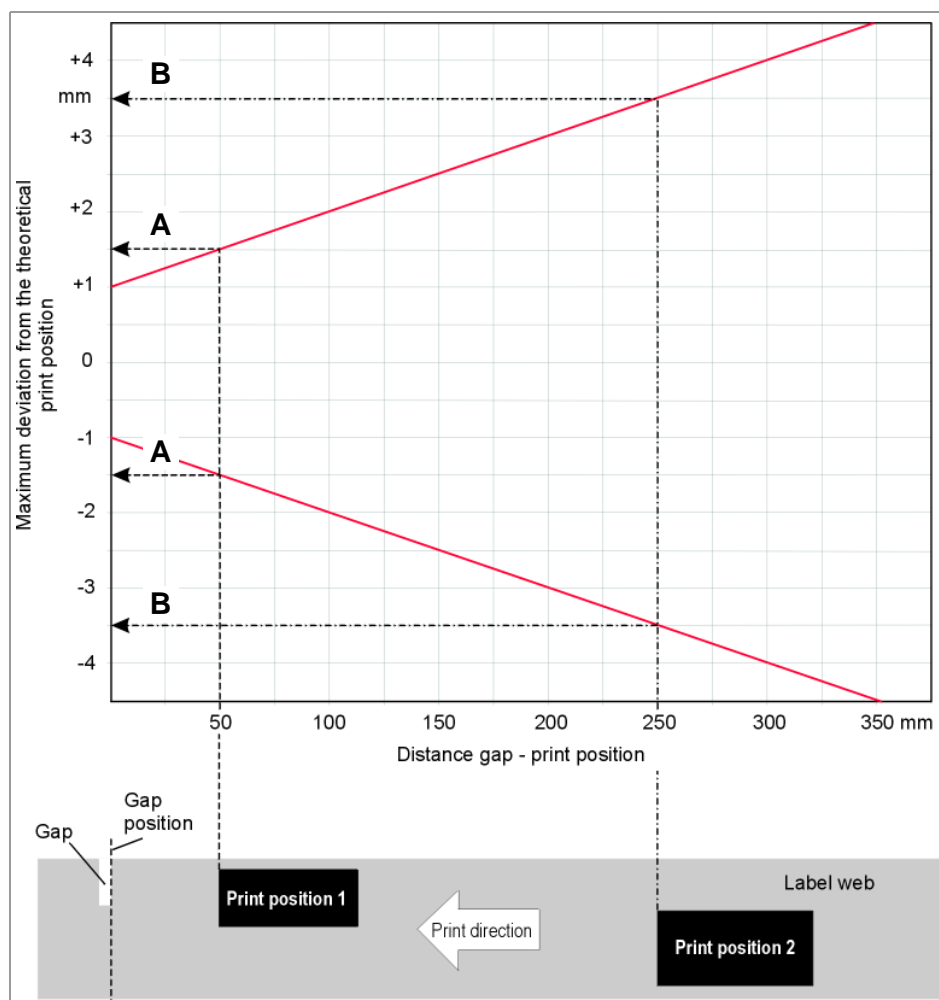
➡ The dark/light change at the reflex sensor is taken as the *label beginning*  
 (= end of the reflex mark)



[2] Measures and setting range of the punch / reflex mark.

Max. print length	<p>The maximum print length depends on the following:</p> <ul style="list-style-type: none"><li>• Printer type</li><li>• Printer resolution</li><li>• Firmware version</li><li>• Parameter settings regarding memory allocation (e.g. <code>SYSTEM PARAMETERS &gt; Free store size</code>)</li></ul>
Zero line	<p>Offset of the material zero line to the print zero line: 1 mm (what means that a stripe of 1 mm width at the inner label margin is unprintable)</p>
Fonts	<ul style="list-style-type: none"><li>• 17 Fixsize fonts , including OCR-A and OCR-B</li><li>• 3 scalable fonts (Speedo fonts)</li><li>• Truetype fonts are supported</li><li>• Optionally can Truetype, Speedo and Fixsize fonts be stored on SD-card</li></ul>
Modifying Fonts	<ul style="list-style-type: none"><li>• Up to factor 8 scaling in x/y direction</li><li>• Rotation by 0, 90, 180 and 270 degrees</li></ul>

## Impression accuracy



[3] The impression accuracy depends on the print position on the label: the longer the distance to the gap is, the lower is the impression accuracy. The maximum impression accuracy is at the gap position with  $\pm 1$  mm.

## Reading examples:

A: Print position 1 is located 50 mm behind the gap position. The maximum possible deflection from the theoretical print position is  $\pm 1.5$  mm.

B: Print position 1 is located 250 mm behind the gap position. The maximum possible deflection from the theoretical print position is  $\pm 3.5$  mm.

▮▮▮▮ Those values are empirical for typical applications with common label stock / foil combinations. Since the deflection of the print position strongly depends on the applied label stock / foil combination, it can turn out higher if unfavorable combinations are used.

## Image formats

BMP, PCX, JPEG, TIFF, GIF, Easy Plug logos

## Bar codes

Codabar	Code 128 A, B, C
Code 128	Code 128 UPS
Code 128 pharmacy	ITF
Code 2/5 matrix	MSI
Code 2/5 interleaved	EAN 8
Code 2/5 5-line	EAN 13 add-on 2
Code 2/5 interleaved ratio 1:3	EAN 13 add-on 5
Code 2/5 matrix ratio 1:2,5	EAN 128
Code 2/5 matrix ratio 1:3	Postcode (guide and identity code)
Code 39	UPC A
Code 39 extended	UPC E
Code 39 ratio 2,5:1	Code 93
Code 39 ratio 3:1	

All bar codes scalable in 30 different width and in the height.

2-dimensional  
bar codes

Data Matrix Code (code according to ECC200)
Maxi Code
PDF 417
Codablock F
Code 49
QR matrix code

GS1 Databar & CC  
bar codes

Reduced Space Symbology (GS1 Databar) und Composite Component (CC) bar codes:

GS1 Databar-14	UPC-A + CC-A/CC-B
GS1 Databar-14 truncated	UPC-E + CC-A/CC-B
GS1 Databar-14 stacked	EAN 13 + CC-A/CC-B
GS1 Databar-14 stacked omnidirectional	EAN 8 + CC-A/CC-B
GS1 Databar limited	UCC/EAN 128 + CC-A/CC-B
GS1 Databar expanded	UCC/EAN 128 + CC-C

## Printer emulation

Easy-Plug



## Label Stock

**Material Types** Thermotransfer material, thermotransfer material, synthetic ribbons: PE, PP, PVC, PA in rolls or fan-folded.

**Material Thickness**

- *Self-adhesive labels:* 60 - 160 g/m<sup>2</sup>
- *Cardboard labels:*
  - AP 5.4: max. 240 g/m<sup>2</sup>
  - AP 5.6: max. 190 g/m<sup>2</sup>

**Material Width**

Printer type	Min. width	Max. width	Passage width
AP 5.4	15 mm	115 mm	120 mm
AP 5.4 dispenser	30 mm	105 mm	110 mm <sup>a)</sup>
AP 5.6	50 mm	180 mm	185 mm
AP 5.6 dispenser	50 mm	170 mm	175 mm <sup>a)</sup>

[Tab. 5] Overview material width.

a) The material passage width is limited by the dispensing sensor, which is mounted at the side. If a dispensing edge without a sensor is applied (foot switch operation), the passage width is as large as at the standard printer.

**Label Length**

Printer	Min. length	Max. length
AP 5.4	5 mm	max. print width <sup>a)</sup>
AP 5.4 dispenser	30 mm	200 mm
AP 5.4 dispenser <sup>b)</sup>	5 mm	200 mm
AP 5.6	5 mm	max. print width <sup>a)</sup>
AP 5.6 dispenser	30 mm	200 mm

[Tab. 6] Overview label length.

a) See [Max. print length](#) on page 6.

b) With optional label sensor for short labels.

**Gap size**

Gap size between the labels on the backing material:

- min.: 1.0 mm
- max.: Label length -15 mm

**Label Roll**

- *Winding Direction:* Labels facing inward or outward, internal rewinder: labels facing outwards
- *Roll diameter:*

Roll / Conditions	Roll Ø
Label roll for normal printing operation	max. 210 mm
Label roll for dispensing operation (with 100 mm core-Ø)	max. 190 mm
Take-up roll for winding/dispenser operation	max. 120 mm

[Tab. 7] Diameter of material and winding roll

- *Core diameter:* 38.1 mm (1.5"), 76.2 mm (3") oder 101.6 mm (4"); cores with 76.2 (3") or 101.6 mm (4") can be applied with the core adapter supplied with the printer.

## Thermotransfer Ribbon

### Ribbon Roll

- *Winding Direction:* Colour-side rolled inwards or outwards
- *Roll measurements:*

External Ø	max. 80 mm
Core Ø	25 mm (1")
Width <sup>a)</sup>	AP 5.4: 25-114 mm AP 5.6: 50-172 mm
Length	max. 500 m

a) Generally counts: The thermal transfer ribbon must overlap the label 2 mm on each side.  
For labels wider than 168 mm counts: Foil width = 172 mm (max. ribbon width).


## Connections, device data

Protection class	„I“
Mains Voltage	100-240 V (AC)
Mains Frequency	50-60 Hz
Power Consumption	<ul style="list-style-type: none"> <li>• Max. 320 W</li> <li>• In standby mode depending on the equipment 30-40 W</li> </ul>
Current Consumption	max. 3.2A

## Interfaces

Interface	Details
RS-232	Baud: 1200-115200, 8- bit; suitable connection cord: 1:1 D-Sub 9 extension lead (connector-jack)
RS-422/485	On optional I/O board, D-Sub 15, Baud: 1200-115200, 8-bit
Ethernet	10/100 Base T with TCP/IP, LPD, RawIP printing, DHCP, HTTPD, FTPD, SNMP
USB (V1.1)	USB-A host port, USB-B device port, Transmission rate 12 Mbps
Signal interface	On optional I/O board, D-Sub 15

[Tab. 8] Data interfaces at AP 5.4/5.6

Detailed information on the interfaces can be found in the Service Manual, topic section [Service Electronics](#) , chapter “CPU boards”, “Interfaces”.

## Electronic Configuration

Feature	Details
CPU	32 bit RMI
RAM	32 MB SDRAM
ROM	4 MB Flash
Memory card	SD
Realtime-clock	Present
Control Panel	4 buttons; LCD graphics display with 128x32 pixels; typically used to display two text lines with 16 characters each

[Tab. 9] Electronic configuration of the AP 5.4/5.6.


## Specifications only for AP 5.4/5.6 dispenser

- Speed, while the rewinding-Ø is calculated: 75 mm/s (3"/s)
- Speed, while the material is fed back: 75 mm/s (3"/s)
- Distance dispensing edge - print zero line: 25 mm
- Distance punch sensor - print zero line: 71 mm
- Max. admissible outer diameter of the rewound backing paper roll: 120 mm

## Environmental Conditions

Operating Temperature	5 to 40°C
Storage Temp.	-4 to 60°C
Relative Humidity	30-85% (non-condensing)
Protection category	IP 21
Noise	70dB(A)

## Test Marks, certificates

CE	<p>EU conformity: The devices fulfil the requirements of the following EU directives:</p> <ul style="list-style-type: none"><li>• EMC Directive</li><li>• Low Voltage Directive</li></ul> <p>For details refer to <a href="#">EC Declaration of conformity</a> </p>
cTÜV <sub>US</sub> -Mark	<p>TÜV test mark for USA and Canada:</p> <ul style="list-style-type: none"><li>• USA: tested according to UL 60950-1</li><li>• Canada: tested according to CAN/CSA-C22.2 No 60950-1</li></ul>
TÜV-Mark	<p>TÜV test mark for EU: tested according to EN 60950-1</p>
CB	<p>CB test certificate: tested according to IEC 60950-1</p>
FCC	<p>Declaration of conformity: FCC rules, part 15 class B devices</p>