imagotag

Product Specification imago G1 4.4

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Content

1 Description

The G1 4.4 is a part of the imago G1 electronic shelf label family with 2.7 inch, 4.4 inch and 7.4 inch e-Ink displays.

The main features of this product are:
- 400 x 300 px
- 90 x 67 mm active display area
- Up to 3000 label updates per hour
- 5-year battery lifetime with 4 updates per day (extended lifetime version available)

This document is the technical specification of the G1 4.4 inch label

1.1 Key Features

- 2.4 GHz bi-directional MSK proprietary radio
- Radio coverage: up to 25 meters
- Return Signal: yes
- 11 available communication channels
- Ultra-low power consumption – 5 years battery life with 4 updates / day
- Customer-replaceable battery
- Full graphical 4.4 inch e-Ink display with paper-like readability
- Changeable and customizable front covers
- Super wide viewing angle (nearly 180 degrees)
- Flexible mounting options available
- Supports 4 multiple pages with preloading and fast page switching
- May be used in landscape and portrait mode
- Fast response time (less than 15 seconds)
- water resistant
- 128-bit AES encryption with secure key exchange
- 3 000 label updates per hour and AP

2 Mechanical Characteristics

2.1 Technical characteristics

The imago G1 4.4 is made of several external parts:

1. Battery Cover including
   a. Label ID
   b. Label ID barcode
   c. S/N
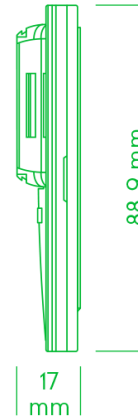2. Battery pack
3. Main Unit including
   a. Back Cover
   b. PCB
   c. Display
   d. Transparent Front Cover
4. Front Cover Frame
   a. Customizable in design and color
   b. Replaceable
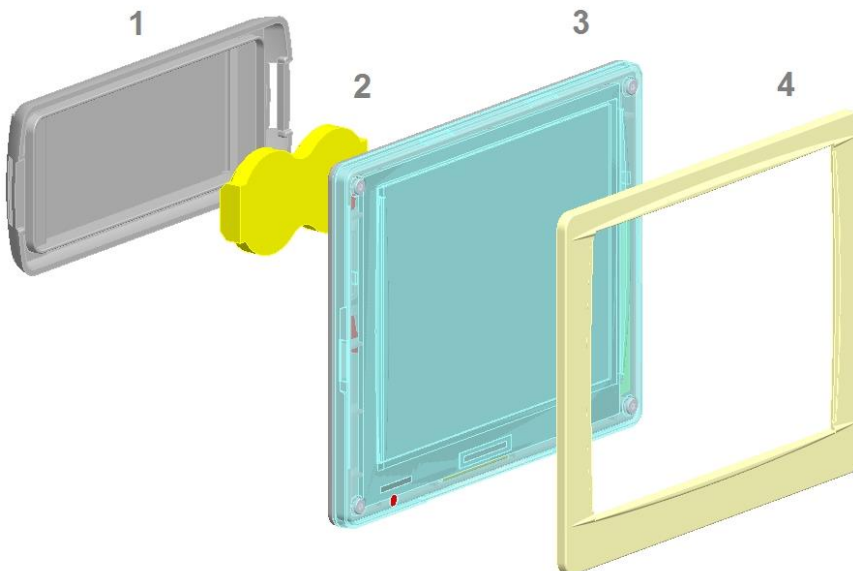
2.2 Mechanical Dimensions

Outline (mm): 114.9 x 88.9 x 17
Weight: 104 g
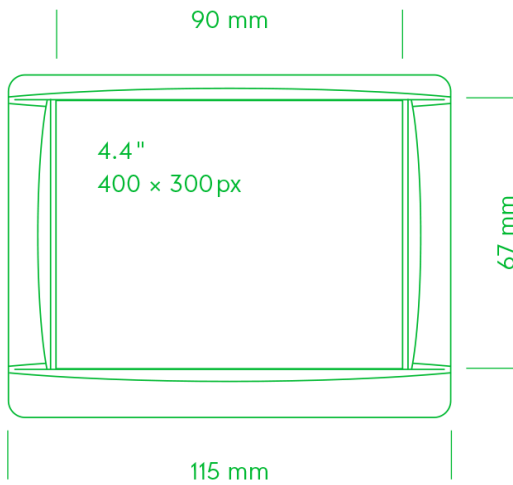
2.3 Barcode Information

The labels come with a label ID (which is a unique identifier – just like a MAC address) and this label ID as a barcode on the display (and printed on the back of the label).

The label ID consists of 8 hexadecimal digits (0-9 / A-F). The first 2 digits identify the different label types, shown on the following table:

Caption	Label-ID	Display resolution	DPIs	Display colors	Pages
imago G1 2.0	A1xxxxxx	200 × 96	111 dpi	Monochrom (1 bit)	9
imago G1 2.7	B3xxxxxx	264 × 176	117 dpi	Monochrom (1 bit)	9
imago G1 4.4	C1xxxxxx	400 x 300	113 dpi	Monochrom (1 bit)	13
imago G1 7.4	D1xxxxxx	480 x 800	126 dpi	Monochrom (1 bit)	13

2.4 Serial Number

Part	Description	Format	Example	Comment	Source
A	Production fab	2 alpha	01		Specified by imagotag once for each fab
B	Product family	2 alpha	G1		Specified by imagotag in the product specification document
C	Type identifier	2 hex	C1		
D	Product version	2 alpha	01		
E	Product revision	3 alpha	002	Incremented on every change of product specification	
-	Separator	"-"	-		Fixed
F	Internal	1 alpha	P	Internal	Calculated during production
G	Year	1 dec	4		
H	Week	2 dec	10	Calendar week in current year (01-53)	
I	Weekday	1 dec	3		
J	Internal	5 dec	00060	Continuous Serial Number (Counter)	

Format: AABBCCDDEEE– FGHHIJJJJJ
Example: 01G1C101002– P410300060

Note:

- Calendar week date is calculated according to ISO 8601
  (see http://en.wikipedia.org/wiki/ISO_week_date)

3 Electrical & RF Characteristics

3.1 Power and Current Consumption

The power supply are 2x cell-button batteries, model CR2450. It delivers a 3V operating voltage and 1 100 mAh nominal capacity.

Power consumption measurements indicate that the G1 4.4 has the following patterns:
- Standby mode (standby radio) : ≤ 1 µA
- Standby mode (active radio) ≤ 8 mA
- Active mode (active radio and active data processing) ≤ 35 mA

Battery pack (2x CR2450 nominal) lifetime - 5 years (at max. 4 updates per day)
Note: battery lifetime can vary depending on the operating conditions of the ESLs (temperature, radio usage etc...)

3.2 Transmission power

Each ESL has got a transmission power of ≤ 10 dBm (according to the FCC certification).

4 E Ink Display

4.1 Overview

This is a 4.41" a-Si, active matrix TFT, Electronic Paper Display (EPD) panel. The panel has such high resolution (113dpi) that it is able to easily display fine patterns. Due to its bi-stable nature, the EPD panel requires very little power to update and needs no power to maintain an image.

4.1.1 General Specifications

Item	Specification	Unit	Note
Outline Dimension	98.504(H) x 80.400(V) x 1.1(T)	mm	(1)
Active Area	89.6(H) x 67.2(V)	mm	
Driver Element	a-Si TFT active matrix	-	
FPL	V230	-	
Pixel Number	400 x 300	pixel	
Pixel Pitch	0.224 x 0.224 (113dpi)	mm	
Pixel Arrangement	Vertical stripe	-	
Display Colors	Black/White	-	
Surface Treatment	Anti-Glare	-	

Note (1): Not including the FPC

5 Environmental

5.1 Operating Conditions

Temperature: 0° C to + 45° C
Humidity: 10% to 80% (non-condensing)

5.2 Cleaning Instructions

Clean the electronic label with the help of a damp cloth.
Note: Do not use liquid or aerosol cleaners and keep it away from water.

5.3 Storage Conditions

Temperature: -20 °C to + 70 °C
Humidity: 10% to 85% (non-condensing)

5.4 Humidity Conditions

Notes:
- High humidity combined with low temperature are not recommended
- Low temperature will reduce the battery lifetime

6 Battery Replacement

6.1 Audience

Only persons with the following knowledge are allowed to replace the battery:

- Battery
- Electronic assemblies like circuit board
- Compliance of the instructions

6.2 Instructions

- Risk of explosion through incorrect battery replacement.
- Use battery pack exclusive provided from the company imagotag GmbH.
- Keep attention that your hands are dry before you start with the replacement.
- Don't use sharps to open the label.
- Don't use your fingernails to open the label.
- Don't touch the circuit board of the open label.

6.3 Steps

1. Use the imagotag battery cover tool to open the battery cover. Afterwards take the battery cover from the label.
2. Pull the white plug out of the socket, don't pull on the cable.
3. Take out the battery pack.
4. Put in the new battery pack.
5. Push the white plug in the socket.
6. Put the battery cover on the label casing.

7 Reliability Test Items

- High Temperature Operation
- Low Temperature Operation
- High Temperature/Humidity
- Operation
- High Temperature Storage
- Low Temperature Storage
- High Temperature/Humidity
- Storage
- Temperature Shock (Storage)
- Package Drop Test
- Package Random Vibration Test

8   Packing

8.1   Packing Dimensions Flextronics

DIMENSIONS				STACKING			QUANTITY	
	LENGTH	WIDTH	HEIGHT					
BOX	**400**	**260**	**250**	LAYER / UNIT	**3**		SETS / BOX	**60**
PALLET	**1200**	**800**	**140**	BOXES / LAYER	**6**		SETS / LAYER	**360**
UNIT	**1200**	**800**	**890**	BOXES / UNIT	**18**		SETS / UNIT	**1080**

Imago G1 4.4 Labels / Box: 60

8.2   Packing Dimensions Falcon

DIMENSIONS				STACKING			QUANTITY	
	LENGTH	WIDTH	HEIGHT					
BOX	**400**	**260**	**250**	LAYER / UNIT	**5**		SETS / BOX	**60**
PALLET	**1200**	**800**	**140**	BOXES / LAYER	**8**		SETS / LAYER	**480**
UNIT	**1200**	**800**	**1390**	BOXES / UNIT	**40**		SETS / UNIT	**2400**

Imago G1 4.4 Labels / Box: 60

8.3 Illustrations
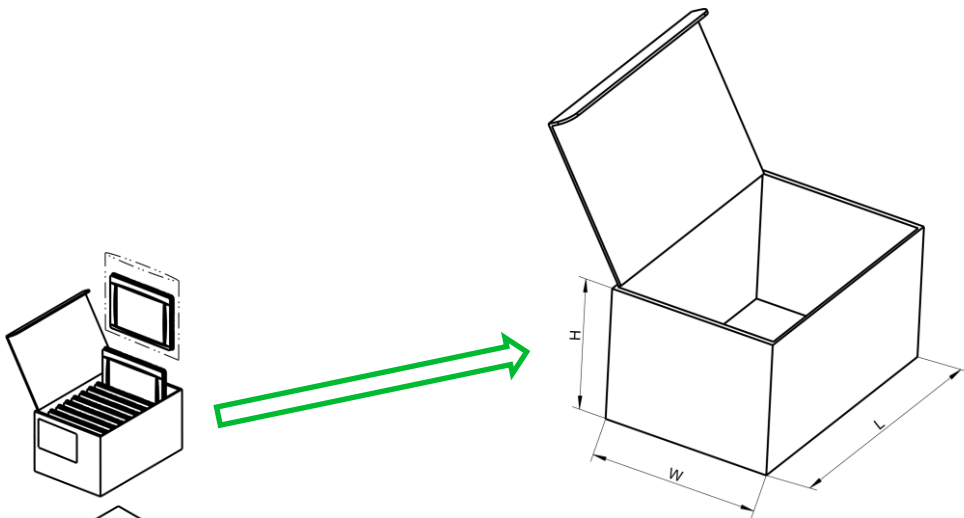
INNER DIMENSION:
(L) LENGTH: 240 $\pm$2mm
(W) WIDTH: 122 $\pm$2mm
(H) HEIGHT: 92 $\pm$2mm

CARTON 44:
- Quality: 321/1B
- Color: inside brown/outside white
- FEFCO 0215 (Blitzboden)
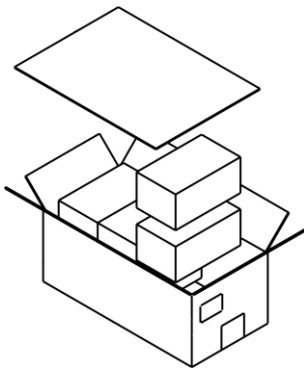
INNER DIMENSION:
(L) LENGTH: 378 $\pm$4mm
(W) WIDTH: 194 $\pm$4mm
(H) HEIGHT: 227 $\pm$4mm

CARTON OUTER 44-60-5K:
- Quality: T33/CB
- Color: brown
- FEFCO 0201

8.4 Ordering Information

You can choose between the following offered label types and colors:

Article Number	Model	Description
110006	4.4 white	imago G1 4.4" RAL 9003 (white)
110008	4.4 black	imago G1 4.4" RAL 7021 (black)
110007	4.4 window grey	imago G1 4.4" RAL 7040 (window grey)
110009	4.4 grey white	imago G1 4.4" RAL 9002 (grey white)
110010	4.4 rape yellow	imago G1 4.4" RAL 1021 (rape yellow)
110012	4.4 white + TP	imago G1 4.4" RAL 9003 (white) with theft protection
110014	4.4 black + TP	imago G1 4.4" RAL 7021 (black) with theft protection
110013	4.4 window grey + TP	imago G1 4.4" RAL 7040 (window grey) with theft protection
110015	4.4 grey white + TP	imago G1 4.4" RAL 9002 (grey white) with theft protection
110016	4.4 rape yellow + TP	imago G1 4.4" RAL 1021 (rape yellow) with theft protection

8.4.1 Package size

- single pack
    - 10 labels / box
- multi pack
    - 60 labels / box

9 Certifications

RoHS Housing, board and the display of the ESL conform with the ROHS Directive

CE The product meets the EU safety, health and environmental protection requirements and has the approval of CE marking

9.1 Applied Standards

Information Technology Equipment
EN 60950-1/A2:2013
UL 60950-1/A2:2014
CSA CAN/CSA-C22.2 NO.60950-1-07
EMV
EN 301489-17 V2.2.1
R&TTE
EN 300328 V1.8.1
Human Exposure to Electromagnetic Fields
EN 62479:2010

9.2 Declaration

The company imagotag GmbH declares on his own responsibility that the imago G1 4.4 corresponds to the standards mentioned above.

9.2.1 FCC

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.

Changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate the equipment.

9.2.2 IC

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

10 Security Terms

- Never dismantle the product because except battery there is no component which could be changed by someone who is not qualified.
- Don't drop it.
- Keep it away from water.
- Don't use the label with defective parts.
- Don't use the label with spare parts and accessories which are not examined and approved by the imagotag GmbH.
- Unauthorized changes or modifications to the electronic label and their components without the consent of imagotag GmbH are not allowed.
- Don't heat, recharge or bend battery.
- Keep away batteries from children.
- Don't throw defective batteries into the dustbin. Give them to a reprocessing company.
- Don't throw ESL into the dustbin. Give them to a reprocessing company.
- Contact imagotag GmbH for more details about this process.