

## Portable note-taker with Braille display (Braille memo)

Battery-powered portable digital device for writing information with the use of braille keyboards and storing the information on an internal memory. The stored information can be accessed (read) through an 8-dot refreshable braille display.

Possible configuration variants concern the keyboard (which may be also a QWERTY typewriter keyboard, a braille touch screen without keys, or which can be also be missing, in which case the device only works as a braille display connected to a PC), the type of braille cells (which may be also with integrated cursor routing keys), the number of braille-elements on the braille display (which can range from 14 cells to 40 cells), the dimensions (which may be also large and not easily portable in case of braille displays whose cells number range from 40 to 84), the information output (which may be also speech with a built-in speech synthesizer output, or both braille display and speech output), the storage medium (which can be also an expandable memory, a SD card, or an external digital support), the connectivity (which may be also USB, WIFI, or Bluetooth, to connect the braille note taker to a smartphone, tablet, or PC), the navigation keys (which may be also a joysticks or and scroll wheels), and the operation system (which may be also a Microsoft Windows CE operating system, or an Android operation system, that permit to use the braille note-taker as an Windows or Android device).

- Product Classification

- APL (WHO Assistive Product Priority List): 3 (Braille displays (note takers))
- ISO 9999:2022: 221336 (Portable note-taking devices for Braille)

- Possible configuration variants

None specified.

- Possible accessories or optional components

- VGA interfaces (connectable to a monitor for visual output).
- Multi-language support (for writing in different braille languages).
- Word processor.
- Mail client.
- Internet browser.
- MP3 player (for listening to music or audio files).
- E-books reader (to get access to e-books).
- Daisy player (to get access to open or copyright protected books in Daisy format).
- Watch.

- Product goals

*Activities or functions the product is mainly intended to support, according to WHO ICF Classification:*

- Using communication devices and techniques [\[d360\]](#).
- Writing messages [\[d345\]](#).
- Writing [\[d170\]](#).
- Reading [\[d166\]](#).

- Indicated impairments

*Difficulties the product is mainly intended to address, according to the WHO ICF Classification:*

- Seeing [\[b210\]](#) (blindness or severe low vision).
- Hearing [\[b230\]](#) (deafblindness).

- **Contraindicated impairments**

*Difficulties for which the product may be inappropriate:*

- Difficulty in fine hand use.
- Difficulty in organizing thoughts into a written text.

- **Indicated environments**

*Specific environments in which the product should be used:*

None specified.

- **Contraindicated environments**

*Environments in which the product may be inappropriate:*

- Underwater.
- Dusty places.
- Sandy places.
- In the rain.

- **Other indicated factors**

*Other factors or situations the product is intended to address:*

- Assisting personal organization (taking notes, storing information, keeping track of appointments).
- Notes taking.

- **Other contraindicated factors**

*Other factors or situations in which the product may be inappropriate:*

- Unfamiliarity with writing and reading braille.

- **Points to be considered in product selection**

- Ensure that the user can adequately write and read braille, if not, ensure that training of braille reading, and writing is available.
- For braille writers with reduced finger sensibility and for braille writers with braille reading difficulties, a portable note-taker with speech output may be suitable; an additional headphone is recommended for privacy.
- Simple and robust braille note-takers, with a simple navigation and very clear braille display, are suitable for people who are new to braille, for people who have decreased feeling in their fingers, or for users with learning difficulties.
- A portable note-taker with braille display and a QWERTY keyboard is suitable for deafblind person who knows the typewriter keyboard; the note-taker can be used also used by a sighted for the communication with the deafblind person.
- If the user prefers braille and speech output, select a note-taker with braille display and build-in speech synthesizer.
- A braille display with 40 or more braille elements will be more comfortable for reading if the note-taker is for home-use only.
- Select a portable note-taker with wireless connectivity (WIFI, Bluetooth), if the user is interested to use the note-taker as an external Braille display to a mobile phone, a tablet, and a computer.
- Ensure that the braille note-take is available in your language.
- A multi-language support is suitable, if the user like to read and to write in different languages.
- A note-taker with an expandable memory, a SD card, or an external digital support is suitable for intensive use (at school, at work).
- Note-takers with integrated Daisy reader may be a solution for those who are interested in both, note-taker, and Daisy audio player.
- For one-handed users, select a device that run also in one-handed mode.
- For mobile use, a case that offers all-around protection is recommendable.
- Functions such as advanced word processing, web browsing, and other functions to assist personal organization (such as watch, timer, calendar, and calculator) are only available in the electronic note takers of the latest generation.

- **Points to be considered in product fitting**

- Ensure that the user is well trained and can switch on/off the note-taker with braille display.
- Show and explain the function, navigation, and braille input keys on the device, and let the user familiarize with them.
- Ensure that user correctly locates and manages the different slots (e.g., USB, headphones) on the device.
- Ensure that the user knows the 8 dots braille symbols, if he knows only 6 dots braille show and explain the use of dot 7 and dot 8.
- Show and explain the different programs installed on the device (e.g., word processing, watch, calculator, calendar), and let the user familiarize with them.
- Ensure that the user can write, read, store, organize, search, and find the information on his device.
- Ensure that user can recharge the batteries; if USB recharging is required, make sure that user can connected to USB charging point or station.
- In case a note-taker with wireless connectivity, ensure that a connection to the user's mobile phone, tablet or computer can be established.
- In case of a note-taker with SD card, ensure that user can change and replace the memory card.
- A braille printed manual is recommendable, especially for deafblind users.
- **Points to be considered in product use**
  - Switch off your device if you do not use it.
  - Do not use excessive pressure when you read braille, the braille cells may be damaged.
  - Charge the device when batteries are low.
  - Before you leave home, make sure that your device is charged.
  - If you are going to charge your note-taker overnight, just make sure it is out in a safe place.
  - You may always use an all-around protection (fall, water) for mobile use; do not expose your device to water.
  - If the memory is full, delete records or, if possible, change memory card, or transfer records to another device.
  - Never use the note-taker with dirty or greasy fingers: dirt can damage the braille cells.
  - Do not expose the note-take to heat and cover it for dust protection if not used.
  - Never leave your device unattended in public places and lock it in a safe place.
- **Points to be considered in product maintenance / follow-up**
  - Regularly clean the note-take, especially the braille display.
  - To extend battery life, do not charge batteries for too long.
  - In case of installed software on the device, ensure to up-date your software.
- **Examples of products available on the market**
  - Live product search in the EASTIN website <https://www.eastin.eu/en/searches/products/list?iso=221336>

## Source

*This Fact Sheet was compiled in 2021 by an international team of experts, to provide the initial knowledge base for a project ("An online system to assist the selection of assistive product") supported by the World Health Organization in 2020-2021 within the GATE Initiative (Global collaboration on Assistive Product). Fact Sheets were compiled for each of the 50 types of products included in the WHO APL (Assistive Product Priority List).*

*The team was composed of Renzo Andrich (Italy, group leader), Natasha Layton (Australia), Stefan von Prondzinski (Italy), Jerry Weisman (USA), Silvana Contepomi (Argentina) and Hasan Minto (Pakistan).*

*The project led to a prototype online tool called ASPREX (ASsistive PProduct EXplorer). At the end of the project, it was transferred to a WHO collaborating center (the Global Disability Hub in the UK), in view of possible future developments.*