Dongle architecture

Important information

Pay special attention to differences in the methods of addressing and the memory areas available for use.

Modern Guardant dongles have onboard permanent memory with the total size of 4096 bytes. A part of this memory is available neither for reading nor for writing, a part of it is read-only, and another part can be changed by special operations only. The rest of the memory is fully available for reading and writing. You can create memory areas protected against reading or writing if necessary.

EEPROM can store data objects of the two main types:

- ***Predefined data objects,*** which always exist in the dongle memory. Their purpose and location are defined by the dongle manufacturers
- ***Data objects created by the application developer.*** Their purpose, dimension and location in the memory are defined upon creation. Such data objects can be created only in the free purpose memory area

Predefined objects can be subdivided into two types:

System fields	Used by the dongle microprogram as well as for the purposes of diagnostics and dongle identification. Addressed in SAM mode.
General purpose fields	Mainly used for selecting the required dongle meeting the search criteria. Addressed in SAM and UAM modes.

Developer's objects can be of two types:

Memory fields not protected with hardware locks	Memory fields store different information of several data types similar to variables in programming languages. Reading and writing into memory fields is done using **GrdRead** and **CrdWrite** operations with the use of respective access codes. No additional services are provided here. Addressed in SAM and UAM modes.
Protected items	Protected items can store both general data and descriptors of hardware algorithms as well as LMS license table. You can set special passwords (individually for each item) for accessing data stored in protected items. Special services for data activation, deactivation and update are provided. Addressed by numbers according to the information stored in the table of allocation of protected items.