**The *ALSA* System Description Language**

**Based on *Wave Logic* by *Team Forth***

Designed & Engineered by *H. Yan*, *Team Forth*.

An *Aspire Rinn Acoustics* Product.

The *ALSA* system description language (Hereinafter referred to as *ALSA*), *ALSA* of which stands for *Assistive Linear System Analysis*, states that *ALSA* is designed mainly for linear systems, and is not only able to describe systems, but also able to do plenty of assistive analysis work. The following contents offer users some basic tips on designing & analyzing linear systems and even more complicated systems based on our *ALSA* system description language, taking *Wave Logic* as an example.

1. **Defining (a) System(s)**
   1. **External/Structural Definition of a System**

To define a system, one should, at the very first place, determine and tell the programme whether the system is *discrete or continuous* at the *head* of the entire definition. The related codes are given below:

1. def a discrete sys
2. #define a discrete system
3. def a continuous sys
4. #define a continuous system

Be ware that, such sentences are *not complete structural definitions*. For example, “def a discrete sys” is just *the head of* a discrete system definition. *More* parts are required to define a complete definition.

* 1. **Naming of a System**

Naming of a system are required when defining a system in *ALSA*. Since defining a large number of systems of the same type with different names separately requires redundant work, *ALSA* allows *multiple naming* or *group definitions* (similar to the data structure, array, that is frequently noted and applied in most of the programming languages). The related codes are given below, taking *discrete system definition* as an example:

1. def a discrete sys
2. #'included' in the following sentences participates as an operator
3. systemA, systemB included
4. #naming two discrete systems as 'systemA' & 'systemB'
5. systemArray\_A[10] included
6. #naming a discrete system group with storage up to 10 systems
7. systemArray\_B[N] included, while N = 10
8. #The same function as above, using dynamic storage allocation
9. end def
10. #complete definition of a discrete system

The naming

1. **Describing (a) System(s)**
2. **System Operations**
3. **Computation & Transformation**
4. **Modern Complicated Systems - Introduction**
5. **Simulation & Application**