



# Application Note



## DDS2007 - Data reduction

### Application:

📁 Data reduction in DDS2007 software

During the DDS system use, a considerable amount of data accumulates in the database. Each user usually works only with recent data and seldom returns to the old data. Nevertheless, old data may not be erased since their future use cannot be excluded.

The data reduction means erasing of insignificant data. Reduction is performed by keeping a smaller database, which accelerates data manipulation and saves disk space. The high-quality algorithm of reduction analyzes data from measurements by several aspects. First is saving data with relevant changes of value. Second is saving data in certain time intervals. A database user can define both descriptions. First is "**relevant change ratio**" of any physical value and second is "**maximum interval between records**". This algorithm is used for static data (described by one value).

Data reduction is also used for dynamic data (described by more values). There is reduction of spectra and reduction of order analysis, which records take up a lot of storage space. In the reduction of spectra is "**minimal level**" of certain physical value. Values with smaller amplitudes as a minimal level are erased and others are saved. The reduction of order analysis is reciprocal to reduction of static data, their values have the sense of static data. Their algorithm performs analogously to the algorithm of static data. A time signal is not reduced.

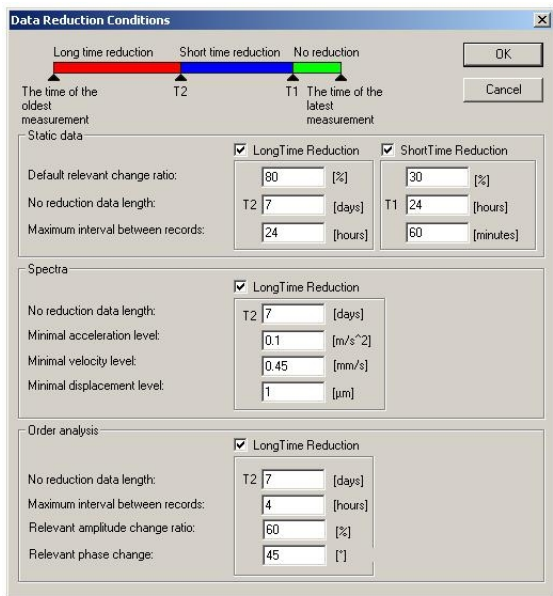
The data reduction contains several characteristics, which are necessarily described:

- The data reductions are fragmented into three groups depending on a type of measuring data. There are reduction of static data, reduction of spectra and reduction of order analysis. At any one type are used another way to reduction with respect to their specific requirements.
- The reduction settings are very similar and transcendental. There are setting determinations of relevant change ratio, or absolute change of physical value.
- The reduction of static data contains a local menu. In this menu, we can set reduction parameters separately for any data cells and respond to their particular properties. If a data cell has no local reduction setting, there is automatically used global reduction.
- The group data reduction allows reductions of much more data cells all at once. Time to reduction is very short (from several seconds to few minutes, depending on database size and PC power). Group data reduction is accessible by local menu everywhere in the tree.
- Separation of data reductions into three groups depending on measurement time and reduction level:
  1. Data without reduction (latest data, which must be unchanged)
  2. Short time reduction data (as a rule is less reduction)
  3. Long time reduction data (as a rule is more reduction)

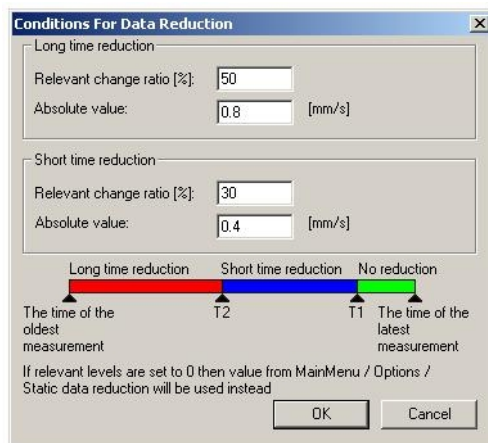
Reduction of spectra and order analysis contains long time reduction.

The menus of data reduction are on the pictures below.

pic.1



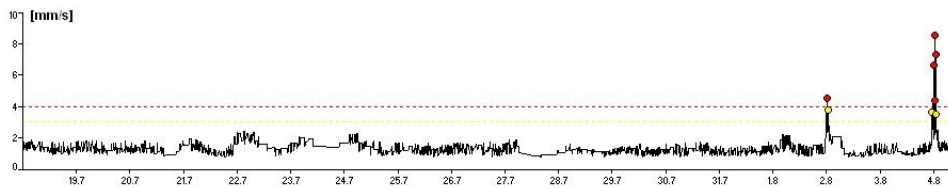
pic.2



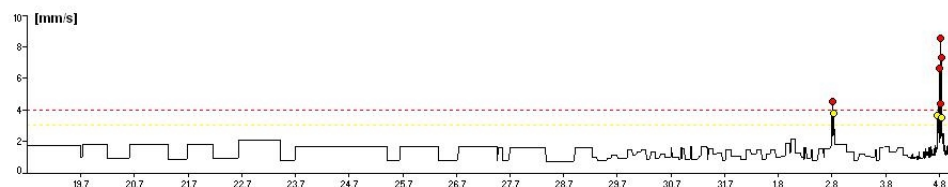
An example comparing static (trend) and spectra data cells before and after reduction:

The setting is same as in the pic. 1 and 2. In the pic. 3 is drawing original trend, which contains 932 readings, the pic. 4 is result of reduction. You can see separation to three groups depend on measure time and level of reduction. After reduction, persevere to only 236 readings. Most of readings are from first group (latest data, which must be unchanged). Reductions of spectra are drawing in the pic. 5 and 6. The pic. 5 contain original spectrum, with 1600 readings. In the pic. 6 we can see reduced spectrum. After reduction, persevere to only 33 readings. All highest peak of spectrum is save, what allows use reduced data in future.

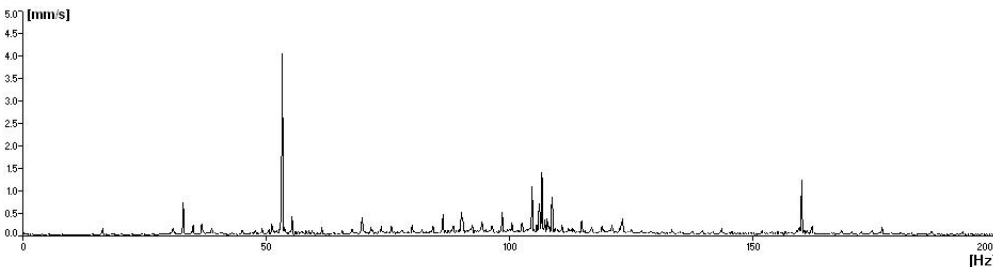
pic. 3



pic. 4



pic. 5



pic. 6

