



IEC 61850 and condition monitoring

After expanding into the domains of Distributed Energy Resources, wind farms and hydro power, IEC 61850 is taking on condition monitoring.

IN THE PAST YEARS, MANY HOURS have been spent in different technical groups to discuss monitoring and IEC 61850. Several activities related to standardization of monitoring information have been started. And as always, when many experts discuss technical issues, some confusion is created.

One part of the confusion is rooted in the fact that this one type of function called monitoring or condition monitoring does not exist. We are using the term monitoring for functions that are completely different in their nature. Let's have a look at some examples.

Example one is the supervision of an insulation media. If there is a leakage with the insulation media, the system will directly take some actions based on the result of the supervision function. As an example, it may trip some breakers.

Example two is the supervision of a heating. If the heating fails, the operator will be informed and he may send maintenance personnel on site.

The third example is the collection of information about

the condition of equipment. That information is analyzed by a specific tool or by experts and based on the results of that analysis, maintenance guidelines may be developed.

It is obvious that these are examples of functions that have completely different requirements concerning standardization. Since the system acts based on the results of the supervision function in example one, it is obvious that this information needs to have a standardized semantic.

With example two, it is sufficient that the operator knows that maintenance is required. This is available in IEC 61850 through the data object health associated with the equipment – in the example the heating.

The information in example three is in many cases equipment specific, and is only used by dedicated tools. In that case, there is no need to standardize the information.

On the other side, there are domains, where it is common practice to measure certain information that can then be

used to determine the condition of the equipment. Examples are the temperature of transformer windings or vibration of a turbine. Several activities have been started to standardize such information for different domains.

To keep IEC 61850 consistent, it is important that common modeling principles are followed. This applies to several issues. Examples are:

- the granularity of logical nodes and data,

- the reuse of the same common data classes or

- the concepts to define limits.

Recently it has been decided in WG10 of IEC TC57 to form a task force for condition monitoring. As a first step, that task force shall prepare a technical report addressing the different aspects of condition monitoring and define the basic modelling approach for monitoring information.

If you have an interest in that area, follow the work that will be done by this task force. Ask your national committee to get the drafts or join the WG as an expert in that domain. ■

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