

Partial discharge monitoring for
gas-insulated switchgear (GIS)

Questionnaire to GIS suppliers and contractors

Document Revision: 1.03

1. Introduction

This questionnaire has to be completed by the GIS manufacturer and substation contractor to clarify all technical details referring to the continuous online PD monitoring system. It covers all technical details required by our sales and engineering department. Modifications during engineering stage may lead into a modified system architecture and subsequently to a different material composition and pricing. Therefore the answers given should be as close as possible to the final solution.

Answers can be placed in the table shown in section 3 or in a separate document. Please refer to the question ID to simplify the identification.

Used abbreviations:

- PDMS - Partial Discharge Monitoring System
- GIS - Gas Insulated Switchgear
- UPS - Uninterruptable Power Supply
- VT - Voltage Transformer
- SLD - Single Line Diagram

2. Documents to be provided by the customer

1. Single line diagram of the GIS with the marked positions of the embedded UHF sensors (see Q10 and Q14)
2. Layout drawings of the GIS in all three dimensions incl. the position of cable ducts and cable trays (Q11)
3. Overall layout of the substation incl. the dimensions and civil drawings (see Q 13)

3. Questionnaire

ID	Question or requirement	Answer or reference source (document ID)	Review comments
Q1	Name and contact details of responsible person(s) for the information given in this questionnaire Rem.: Multiple contacts allowed		
Q2	Brand or manufacturer of the GIS and address of factory site		
Q3	Type of the GIS		
Q4	(A) Three-phase encapsulated GIS (B) Single-phase encapsulated GIS		
Q5	(A) New PD monitoring system (B) Extension of existing PDMS (C) Portable monitoring device		

ID	Question or requirement	Answer or reference source (document ID)	Review comments
Q6	Applicable standards and/or end customer specifications		
Q7	Language of the GIS documentation		
Q8	Rated voltage level of the GIS		
Q9	Rated power frequency of the GIS		
Q10	Single line diagram of the GIS		
Q11	Layout drawings of GIS in all three dimensions incl. position of cable ducts and cable trays		
Q12	Number and position of embedded or external UHF sensors for PD measurement; (Positions of the sensors to be marked on the SLD)		

ID	Question or requirement	Answer or reference source (document ID)	Review comments
Q13	Specify the location of GIS control room (overall layout of substation incl. dimensions and civil drawings)		
Q14	Details of the UHF PD sensors (design drawings, sensitivity, UHF spectra, type of connector, etc.)		
Q15	Measurement results of typical sensitivity check on the same type of GIS according to CIGRE recommendation 15/33.03.05.		
Q16	Voltage and frequency for the PDMS		
Q17	UPS provided: (A) By customer (B) As part of the PDMS		

ID	Question or requirement	Answer or reference source (document ID)	Review comments
Q18	Provision of the AC synchronisation voltage from the VT on the busbar; Specify the VT AC voltage level at the rated voltage. Typ. range: 20 V AC–230 V AC		
Q19	Voltage level of the so called “Any object running signal”; This logic signal (1/0) has to be provided by the GIS manufacturer. This active low signal indicates an ongoing switching activity of any device (earthing switch, disconnecter, etc.) within the GIS.		
Q20	Ambient conditions for indoor and outdoor (if applicable)		
Q21	Colour and dimensions for indoor cabinets and racks		
Q22	Colour for outdoor cabinets and racks		
Q23	Other special requirements regarding racks and cabinets.		