

ANNEXURE - 1A, REV-00 TO PI 240992397

GENERAL TECHNICAL SPECIFICATION REQUIREMENT FOR ALL RELAYS.

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| 1 | Vendor to confirm that all the offered relays are suitable to meet the requirement of inter-operability of IEC61850 compliance when used with the other manufacturer relays over IEC 61850 communication system . | Complied / Not complied |
| 2 | The relay shall be provided with an RS232 or equivalent port on the front for connection to a laptop PC. The relay shall also have Ethernet port(s) on the rear for connecting relay to an IEC 61850 Ethernet ring LAN through managed Ethernet switch) for data communication to Local PC and Plant DCS system. | Complied / Not complied |
| 3 | Communication Protocol shall be IEC-61850 without use of any external protocol converter. Supplier shall finalize list of all data that are to be transmitted to DCS during detailed engineering and got it approved from THDC. | Complied / Not complied |
| 4 | All the offered relays shall be suitable for mounting in switchboard flush pattern case, with rear access ring type terminals. Each CT/PT terminals shall be suitable for connecting two wires of 2.5 mm square cross-section and other terminals suitable for connecting two wires of 1.5 sq.mm cross-section. Special lugs or socket, if required, shall be supplied in adequate quantity along with the relay. | Complied / Not complied |
| 5 | All the offered relays shall be capable of display measurements in primary values and shall be suitable to display the primary current of the order of 10000 Amperes. | Complied / Not complied |
| 6 | Interrogation voltage for digital inputs of all the offered relays shall be 220V DC with minimum threshold pick-up voltage of the order of 70% of 220V DC. | Complied / Not complied |
| 7 | All numerical relays shall have Programmable Scheme Logic, Fault Recording, Disturbance Recording, Event & Alarm Recording and self diagnostic functions. | Complied / Not complied |
| 8 | All time stamped data at relay shall be able to be transmitted to DCS through rear Ethernet communication port (s) on all the offered relays. | Complied / Not complied |
| 9 | Time stamping of events, fault records, disturbance records shall be done within the numerical relay with a resolution of 1 milli second. | Complied / Not complied |
| 10 | It shall be possible to synchronise the clock of all the numerical relays with GPS Clock(not covered in this enquiry) on SNTP Protocol data from IEC-61850 Ethernet LAN . | Complied / Not complied |

11	Complete communication system architecture shall be furnished for all relays covered in this enquiry along with the BOM. The system architecture shall show connectivity between all relays, Ethernet switches and Industrial PC, time synchronisation of all relays.	Complied / Not complied
12	Complete model number of numerical relays will be furnished with order acceptance for information only.	Complied / Not complied
13	Any additional interfacing hardware, cables, connectors etc. necessary for completion of the system, whether specifically mentioned or not in the BOM, shall be supplied without any additional price implication.	Complied / Not complied
14	Supplier shall provide without any price implication, IED Capability Description file, PICS, MICS, PIXIT and any other necessary files and documents required for integration of all relays/IEDs with Plant DCS system. Goose subscription/publish feature also to be made available by the supplier.	Complied / Not complied
15	Vendor to ensure that all the offered relays are acceptable to THDC and have been supplied in the past THDC projects. If at any stage it is found that any relay offered/supplied is not acceptable to THDC, it will be vendors responsibility to replace the relay with suitable THDC acceptable relay without any price implication and binding on BHEL.	Complied / Not complied
16	Vendor shall furnish descriptive catalog, technical guide, panel cutout, overall dimension drawings, electrical connection drawing, complete model number and technical particulars for each item along with the offer.	Complied / Not complied
17	One no. CD comprising of soft copy of above documents also to be furnished with the offer.	Complied / Not complied
18	Point wise compliance to each clause of the specification in Annexure-1, Annexure-1A and Annexure-1B shall be furnished failing which the offer may not be considered.	Complied / Not complied