

The IO signals to/from the PLC and RTU must be connected to the field equipment via signal splitters.

The PLC and RTU design shall be of modular construction. Single board PLC and RTUs are permitted where the IO counts are low.

The signal splitters, PLC and RTU IO terminal blocks and wiring shall be provided with 25% spare IO capacity above the design requirement.

Minimum requirements of the PLC and RTU are shown in Table 6-12.

Minimum PLC and RTU Requirements	
1	Data acquisition from field equipment (digital and analogue)
2	Data recording and tagging (time and date)
3	Sequence of events recording
4	Alarm management (prioritise) including reporting by exception
5	Handling data received from control centres
6	Data processing (including math outputs and software routines functions)
7	Initiating commands (digital and/or analogue outputs) and software routines (pump sequence control)
8	Self-diagnostics
9	Communications and control including route selection
10	Programming and diagnostics via control centre, and RTU configuration and maintenance units
11	An intelligent, rule-based adaptive system is required to minimise false alarms and nuisance alarms
12	Compliant and supporting with DNP3 communication protocol

Table 6-12 – Minimum PLC and RTU Requirements

Functional design specification shall be submitted with the following:

- i. System architecture
- ii. P & ID drawing
- iii. Inputs/outputs list, physical and internal signals
- iv. Alarms priority, triggered / buffered alarms
- v. Operation philosophy
- vi. Control set points
- vii. Test procedure, materials check list

The facility for communication between the pumping station and SCADA System shall be by GPRS/3G telephone line or fibre optic cable, based on the availability of service in the area.

SCADA hardware and software requirements are set out in detail in General Specifications.