

		<u>I/O COUNT</u>			Annexure -[B] of PY56562		
		<u>LDO/HFO PLC System</u>			Rev 00		
		Project: Nalco Damanjodi 18.5 MW STG + 300 TPG Boiler Project					
[A] I/O Count for LDO/HFO PLC							
	S. No	Signal description	Signal type	Base Qty (No's)	Redundancy [Yes-Y] [NO-N]	Inter Posing Relays (IPR)	Remarks
	1	Analog Inputs	4-20mA (2-wire)	36	Y	NA	
	2	Analog Outputs	4-20mA (2-wire)	6	Y	NA	
	3	Digital Inputs	Potential free	36	Y	NA	
	4	Digital Outputs	24V DC	20	Y	20	
<u>SPAREs CALCULATION :: of all PLCs shall be as per below</u>							
	S. No	Signal description	Requirement	Remarks			
	1	Installed Spares	System spares : Bus capacity – 40% & Number of nodes – 30%	All the installed spares shall be supplied with fully wired up.			
	2		For I/O cards : 20% of base quantity given in above Tables				
	3		Marshalling: 20% [this includes isolators, terminals, cable glands, etc.]				
	4		Power supply: 20% for each variety [like feeders & other sub-components]				
	5	Spare space	I/O level: 20%	[Internal wiring up to I/O terminals shall be completed with all necessary hardware. Installation of only I/O cards should make this spare space usable].			
	6		Marshalling level : 20%				
	7	Spare in Communication bus	The communication sub-system shall have sufficient capability to take care of system expansions as mentioned above without degrading the system performance.				

NOTES ::

1 Deleted.

The above mentioned I/O count is exclusively for process control requirement. Any I/Os required for the operational requirements

2 of the PLC system in line with specifications shall be taken care by the Vendor. (For example, Panel temperature monitoring signals, all fan failure alarms, PLC system diagnostic alarms, etc).

4 Erection & Commissioning spares – as required to be added to above count.

5 Interrogation voltages of MCC DI / DO's, SOVs, Field transmitters shall be provided during order execution.

6 Bidder to design SOE requirement as per Annexure-[E] of PY56562 and list of the same shall be furnished at the detail engineering stage.

6 Guidelines for Spares calculations:

6.1 I/O Count shall be as per above tables. While calculating the I/O module quantity, decimal values shall be rounded off to next I/O module qty.

6.2 Installed spares - to be calculated on hardware for actual rounded off to next module qty.

Spare slots/space - to be calculated on (actual rounded off module qty/used space + installed spares rounded off module qty/

6.3 space for installed spares + installed commissioning rounded off module qty/ space for installed commissioning spares). Spare slots shall be fully wired upto-marshalling TB including intermediate accessories like Barriers, interposing relays etc.

6.4 Commissioning spares - Items used during E&C of system to replace the faulty one. Such item shall be supplied without any commercial implications.

6.6 Spare capacities for processor/power supply - Spare capacity of processor shall be calculated on total installed hardware for future additional I/O's for which spare slots are available.

7 Erection & commissioning spares shall be considered by bidder as required by the system

8 Installed spares shall also be considered while calculating the quantity of IPRs etc.