UPS AND BATTERY SIZING FOR CONTROL SYSTEMS

Project: DCS and SIS UPS	Calc no: CALC EL 003 Rev: 0

Yellow cells: enter data. Grey cells: calculated automatically. Free template from instrumentationblog.in

Design data			
Load power factor	0.9	**Design margin (%)**	25
Backup time (h)	1	**Battery bank voltage (V DC)**	192
Inverter efficiency (0 to 1)	0.9	**Ageing factor**	1.25
Usable depth of discharge (0 to 1)	0.8		

UPS loads

No	Load	Qty	Power each (W)	Total (W)	Critical?	Remarks
1	DCS controller cabinets	2	600	1,200	Yes	
2	SIS cabinet	1	500	500	Yes	
3	Operator stations	3	350	1,050	Yes	
4	Network switches	4	60	240	Yes	
5	Field 24 V DC supplies	2	480	960	Yes	
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14						
15						
				Total load (W)		**3,950**
				UPS rating with margin (kVA)		**5.5**
				Battery capacity required (Ah)		**36**
				Battery energy (kWh)		**6.9**

Battery capacity depends strongly on discharge rate and temperature; check against the battery maker discharge tables. Size for end of life capacity (ageing factor).

Prepared by	Checked by
Name:	Name:
Signature:	Signature:
Date:	Date: