

# Control System Service

## 1 Control System Service

Supplying complete project life cycle support services to customer including :

- 1 Systems Specifications  
(including bill of materials and Control logic)
- 2 Control Panel Design and Manufacture  
(including drive systems)
- 3 Software Development (SCADA, PLC, DCS)
- 4 Installation & Commissioning & Training
- 5 Site support  
(including routine system validation, calibration and optimization)

## 2 OEM Service

Outsourcing of Automation Service for OEM customers :

We supply automation support service is cost effective alternative to expanding in-house technical departments. With the wealth of experience that we has acquired, we provide cost effective initial system design, repeat build and after sales support.

## 3 Experience

- 1 E.Power & Energy monitoring
- 2 Motor control systems including AC and DC drives
- 3 Process control
- 4 Condition monitoring & Gas detection
- 5 Quality control & Safety systems
- 6 Machine control

## 4 Control panel

User specified control panel(cabinets) design, manufacture and delivery

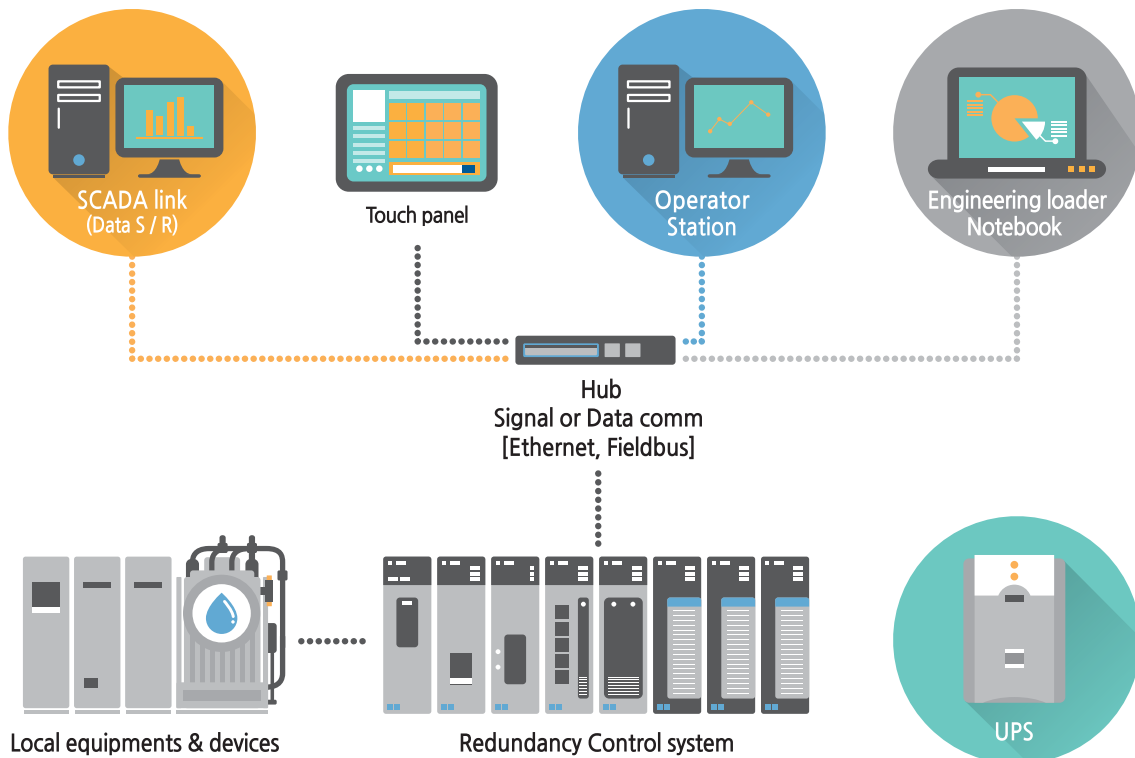
## 5 Application

Applicable control system based on products :

Rockwell Automation, Siemens, LS, ABB, GE, Mitsubishi, Schneider

# Control System Service

## 6 System Configuration : Example



## 7 Control Philosophy : Example

No	Control Loop	Description
1	Remote/Local Operation	Local + Remote operation
2	Auto/Manual Operation	Device Manual + Auto Sequence Operation
3	Sequence Start/Stop Operation	Process sequence Start/Stop Operation
4	Production control	Production auto control
5	Proportional control	Feed forward control : proportional
6	PID control	Feed Back control : PID

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No	Control Loop	Description
7	Cascade control	Feed Back control : cascade PID control
8	Fuzzy control	Fuzzy control based on fuzzy theory
9	Equipment Selection	Required equipment/device selection
10	Start over Start Operation	Bumpless transferring to altanative process
11	Fail over Start Operation	Bumpless transferring to standby equipment/devices
12	Periodic Auto Transition	Bumpless transferring following equipment/device operation hours
13	Operation hour Accumulation	Accumulation of equipment/devices operation hours
14	Alarm/Event/Trend Monitoring	Alarm/Event/Trend Monitoring

## 8 Mimics

No	HMI Mimics	Description
1	Process Overview	Process flow mimic
2	Trend & Run hours	Continuous data trend & Operation Hour counting
3	Sequence Start/Stop	Process sequence start/stop mimic
4	Value set & Equipment sel	Process control set & equipment selection set mimic
5	Equipment Status data	Main equipment status data mimic
6	DD/MM/YY report	Daily/Monthly/Yearly report window
7	Alarm/Event/Trend	Alarm mimic + Event mimic + Trend mimic

## 9 Documentation

No	Documentation	Description
1	O&M Manual	Operation & Maintenance manual for Control System
2	PLC+HMI Program	Developed HMI/PLC program for backup
3	Data Base	Control System Data Base + IO List
4	Control System Manual	Devices manual of Control System

# Control System Service

## 10 Scope of Supply : Example

No	Items	Description
1	Control System Design & Programming	Control System configuration Control System IO List & DB List PLC programming HMI programming Program installation & test Control panel design Communications Test
2	Hardware	Touch panel , Notebook , Operator workstation, UPS, Controller(PLC), Control panel
3	Installation	Control panel installation Operator workstation install UPS installation & etc
4	Commissioning	Control System commissioning & Training
5	Completion	Project completion and operator training

## 11 Work Flow : Example

No	Items	Description	Documents
1	Kick Off meeting & Site survey	Confirmation of... -Control philosophy & Configuration -Control Scheme & Area -Graphic User interface -Documentation -Milestone	P&ID Technical specifications Milestone
2	Control system & Panel design	Confirmation of "Scope of Supply" System configuration & BM List Panel design & BM List	Scope of Supply System configuration & BM Panel drawing & BM
3	Data Base 작성 & Mimic design	Database (inc. IO List) PLC Program & HMI Program	IO List DB List
4	Internal Test FAT	PLC Panel sequence test PLC&HMI prog. Internal&sequence test Program Installation	Internal Test report FAT report
5	Installation & Commissioning	System installation & Commissioning SAT	SAT report
6	Training	Operator & Service engineer training	O&M Manual