

SmartControl

Airfield Ground Lighting
Control and
Monitoring system

Compliant to Latest International Standards

- ▶ ICAO Annex 14, Vol 1
- ▶ IEC 61508
- ▶ EASA 139/2014
- ▶ UK CAP 168
- ▶ TP312

Applications

From simple CAT I systems through to CAT IIIB Advanced
Individual lamp control and monitoring of airfield lighting
fixtures

Description

SmartControl is a state of the art airfield ground lighting control system that can cater for all airport requirements, from a simple CAT I system up to a CAT IIIB ILCMS. This is a modular control system that is infinitely versatile and expandable. SmartControl is a PLC based system, consisting of a number of standard elements, each of which is repeatable and can be 'plugged together' in various combinations. By utilising a topology database to hold all of the airport specific information, the PLC-SmartControl system allows any airfield modifications to be carried out simply and safely by airport engineers without any need for costly software changes.

How does atg airports guarantee to meet the your requirements?

As part of our quality assurance we adopt a tried and tested process approach to all control system projects. The following key documentation will be completed to ensure our customer's requirements are accurately translated into an operational CMS:-

- ▶ User requirement Specification (URS)
- ▶ Functional Design Specification (FDS), showing technically how the CMS will reflect the URS and practically how it will be visualised and controlled
- ▶ Software Design Specification (SDS) detailing how the FDS will be met
- ▶ Factory Acceptance Test (FAT) documents issued very early in the process
- ▶ Site Acceptance Test (SAT) test and acceptance documents issued very early in the process to the client for comments. The comments will be added to the test specs and re issued.
- ▶ Transition Plan to detail how the changes will be safely integrated
- ▶ Mandatory Factory Acceptance Test with client representative present.
- ▶ Mandatory Site Acceptance Test with client present.

Features

Provides touchscreen or conventional desk operation with remote brilliancy selection and control, standalone or Client Server

- ▶ Supports multiple runway control, runway end selection and taxiway to runway conversion
- ▶ Control and monitoring of any Constant Current Regulator via Multiwire, Dual Profibus, Dual Modbus TCP, J-Bus 485 or J-bus TCP
- ▶ Provides full SMGCS routing using dynamic and preconfigured routing with integral Stopbar control
- ▶ Switching and monitoring of individual LED and tungsten halogen fixtures
- ▶ Easily modified and upgraded by the client, independent of atg airports if suitably trained personnel are available
- ▶ Suitable for configurations ranging from one lighting substation / FEC to sixteen as a standard or more if required
- ▶ Full atg airports after-sales maintenance and service support with 24/7 response being available

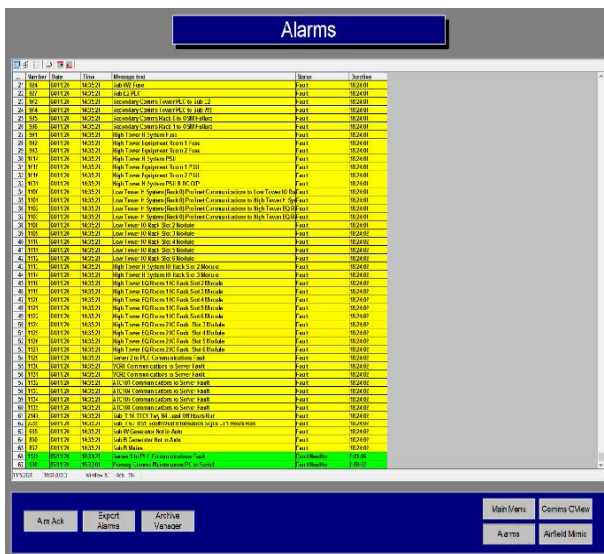
PLC SmartControl is a modular control system, which consists of standard elements, each of which is repeatable and 'plugged together' in a standard manner in various combinations to achieve the individual system architecture best suited to a specific airport. This is generally influenced by the type of control interface required, the number of substations and the required level of redundancy

The main elements of Smart PLC Control are:

- ▶ The user interface (SCADA, Standalone or redundant Server)
- ▶ The PLC Control, Hot Standby, SAFE or Standard.
- ▶ The Maintenance -Interface
- ▶ The Engineering-Interface
- ▶ The topology database

Maintenance Interface

Smart PLC Control provides a user friendly colour graphical maintenance interface. This includes an overall airfield mimic with screen 'buttons' for selecting/deselecting services and a substation mimic for each substation showing the status of the PLCs and CCRs. Equipment is shown as green when healthy and red when unhealthy. Clicking on items of equipment (where appropriate), can reveal further information to identify the exact cause of a fault rapidly and intuitively.



Comprehensive maintenance data and statistics are available from the maintenance workstation.

The information accumulated can include:-

- Hours run
- Hours failed
- Briliancy hours run (for each level)
- Number of switching operations

Since the information is logged into an SQL database, powerful relational database queries can be easily performed.

Engineering Interface

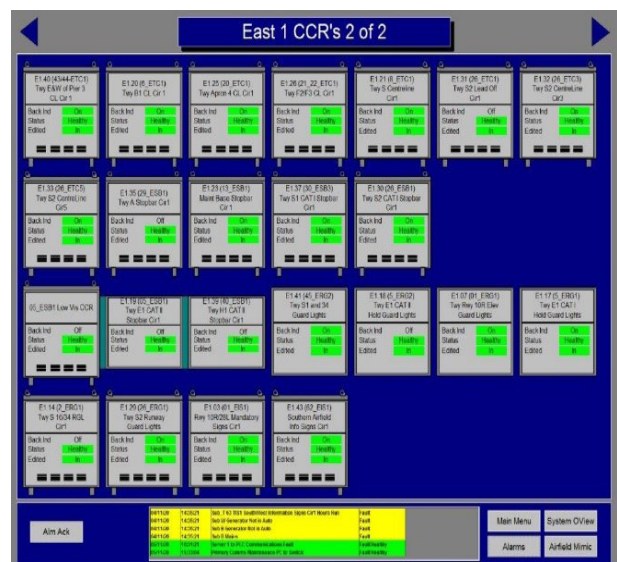
The engineering interface is provided for the system manager, and handles housekeeping and "Black Box" log interrogation. Housekeeping includes such activities as database saving/ retrieving and archiving. Black Box log interrogation includes the ability to call up the stored logs of every control system activity. Individual button presses can be traced right through the command cycle, including back indications.

Topology Database

Conventional control systems bury the information about the system configuration, such as which lights are adjacent, CCR configuration etc, making changes difficult and risky.

Smart PLC Control eliminates this problem by adopting a SQL based topology database. This powerful tool holds all the airport specific information in a user friendly environment. This allows the user to edit this information in a safe manner and automatically cross checks it to prevent errors.

This means that extra circuits and CCRs can be easily added by suitably trained airport staff without the requirement for software changes in many cases.



Control Equipment

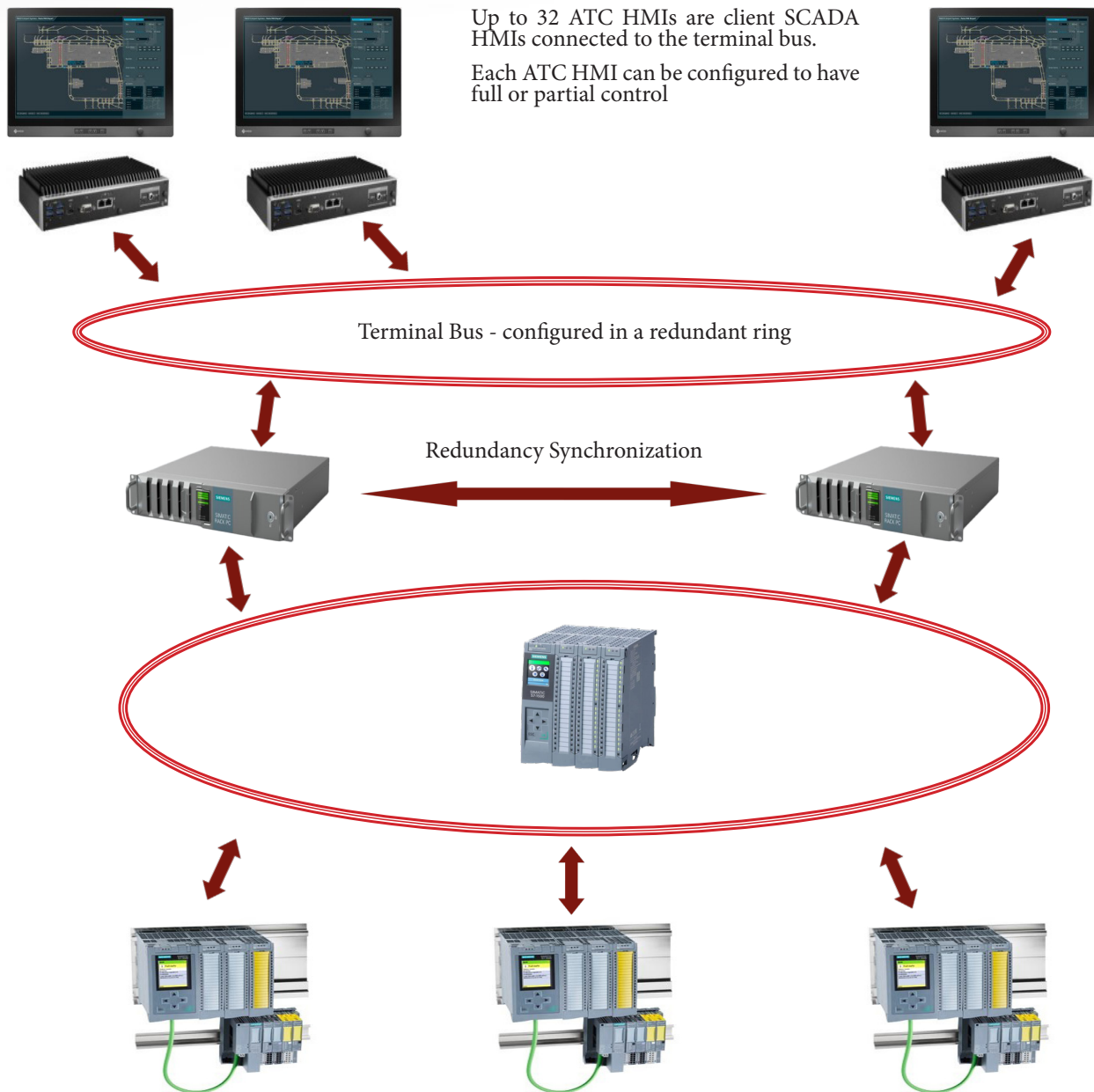
The workstations and PLCs are distributed around the lighting substations for enhanced security and are linked together by a highly reliable "self healing ring" of optical fibre.

Smart Hardware

The hardware used in SmartControl is a blend of proven, powerful workstations, PLCs with failsafe and standard I/O.

Typical System

Full Redundancy AGL Control System consists of an A Centre S7 1500H PLC System, Multiple ATC Touch Screen SCADA system Siemens Professional Dual Redundant Server / Client and S7 1500 Safe B Centre PLCs to control the airfield lighting equipment.



Airfield Ground Lighting equipment is controlled and monitored by a mixture of standard and safe B Centre PLCs.

- ▶ AGL Constant Current Regulator
- ▶ Smart Switch Unit (ILCMS Field Device)
- ▶ DC AGL light Switch.
- ▶ AGL Constant Current Regulator Circuit Selector
- ▶ Auxiliary AGL Services Windsock, Beacon, Strobe Approach



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