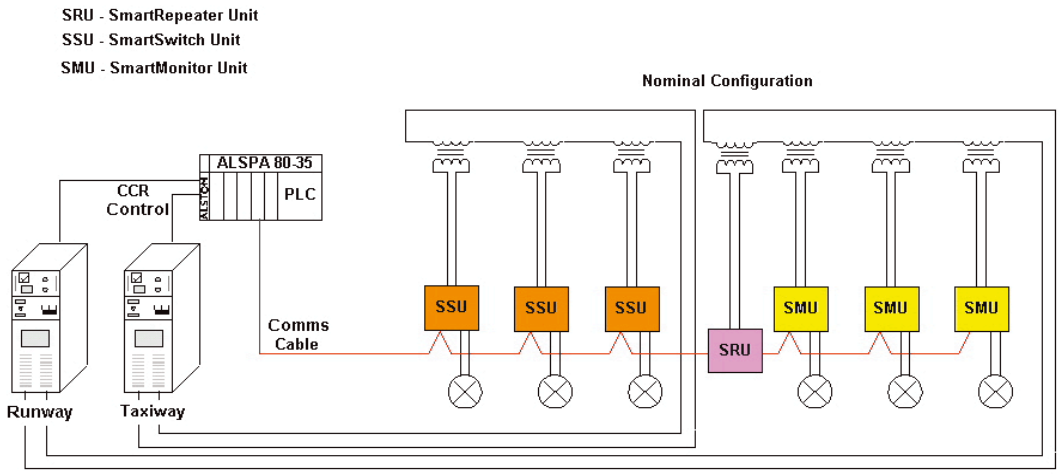
SmartRepeater



Features

- Unmatched communications reliability
- High communications speed – typical stopbar/lead on back indication within 2 seconds
- Communications completely independent of primary loop equipment
- Communication's signals have no effect on existing CCRs
- No shielding required on primary cable
- No insulation resistance requirements on primary cable
- No special primary loop cable routing requirements to avoid high frequency pick-up or radiation
- No special performance requirements for existing isolating transformers
- IMM available on request

Compliance with standards

- CAP168
- ICAO Annex 14

Application

The atg SmartRepeater is designed to be used as part of a system incorporating SmartSwitches and/or SmartMonitors. It extends the range of an RS485 link by 1Km (3300 feet) and is able to branch off an existing link. It is designed as a field unit and is installed alongside a standard field isolating transformer.

Options

- Power connection may either be by atg heat shrink connection or by FAA L-823 style connectors
- Communications cable may be insulated up to 5kV so that it can safely be run in primary circuit ducts

Low power consumption

- Minimal extra loads for isolating transformers and CCRs

Protection

- Rugged, robust construction
- Chemical contamination resistant
- Fully encapsulated to provide enhanced reliability

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Ease of use

- System immediately recovers on fault clearance. No need to reset at substation

Description

The atg SmartRepeater is a fully encapsulated RS485 repeater, suitable for use with SmartSwitches and SmartMonitor. It draws its power from the secondary of a standard isolating transformer.

The atg SmartRepeater automatically senses, boosts and reclocks signals on a 2-wire RS485 bus in both directions. atg SmartRepeaters can be cascaded to form very long links (up to 11Km – 6.5 miles). These do NOT need to be looped back to the source.

The security and reliability of communications is ensured by utilising an RS485 standard data link operating over ordinary fieldbus cable. This benefits from a mature and proven technology with a world wide base in excess of hundreds of thousands of communications links. Such communications links are widely used in other safety related applications.

Functions

- Powered off 6.6A circuit
- Boosts and reclocks 2-wire RS-485 signals in both directions
- Facilitates branching networks

Communications

- Communications are based upon ESP, asynchronous half duplex (2-wire), using RS485 signal levels at 9.6KB
- Up to 200 elements may be multi-dropped on a single link
- Communications cable is a screened single twisted pair fieldbus cable, optionally insulated up to 5kV
- Full isolation between communications and power circuits

Environmental

- The atg SmartRepeater is of rugged construction, encapsulated to IP68
- Resistant to chemicals associated with airports
- Capable of being installed in FAA L-867/L-868 deep bases
- Ambient operating temperature is – 20°C to +65°C
- EMC rated to industrial standard EN 50 081-2

Power requirements

- Power supply is from the secondary side of the lamp transformer
- Power consumption less than 2W

Packing data

Net Weight 2kg per device

Finish

PVC compound K32LT to BS 6746 T12. Finish colour is congo red.

Suggested specification

Each field communications circuit shall be 2-wire RS485 and shall be no more than 1Km (3300 feet) long between repeaters. The field repeating unit shall be powered off the 6.6A circuit. It shall boost and reclock the RS485 signals in both directions.

The field repeating unit shall take a maximum of 2W from the secondary circuit. It shall operate with the existing field cabling and isolating transformers and shall not interfere with the operation of the existing CCRs. The field repeating unit shall communicate over a purpose designed, dedicated fieldbus, twisted pair communications cable, at a minimum data rate of 9.6K baud. Up to 200 monitoring units shall be capable of communicating on a single link, the master on the link shall be a standard industrial PLC with no electromechanical moving parts. Individual polling shall take less than 50ms.

The field repeating unit shall be designed to operate in the same environment as an isolating transformer. As such it shall be fully encapsulated, be resistant to salt water, aircraft fuel and de-icing agents and have an operating temperature range of –20°C to 65°C.

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