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specialists in machine and process control

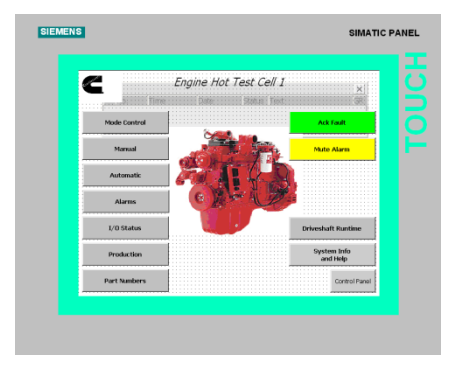
Engine Test Cell Upgrade

Solution Partner: ***Cleveland Systems Engineering***
Customer: Cummins Engines, Darlington.
Segment: Automotive

Requirements of the customer:

- Replace S5-115U with S7-300 system.
- Communicate with RFID via Profibus DP.
- Communicate with Test PC via RS232.
- Communicate with plant MES via Industrial Ethernet.
- Sequence control using S7-Graph.
- Intuitive operator interface with inbuilt fault diagnostics.

The Engine test cells at Cummins in Darlington were installed in the 1980's and controlled by Siemens S5 PLC's. Cummins required a new system that would not only control the cell sequences but be able to read engine data stored on an RFID tag, communicate the test requirements to the test PC and interface with the new plant MES system.



Solution Partner
Automation
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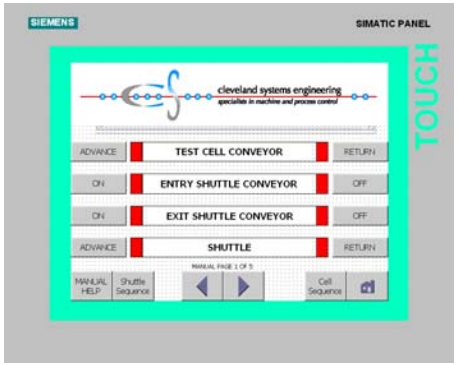
Implementation by the Solution Partner:

- Cummins could not afford any downtime and installations for all three test cells were successfully carried out over bank holiday weekends.
- Cummins had decided to make S7-300 the plant standard at Darlington and had minimal maintenance resource with S5 expertise.
- Cleveland Systems Engineering provided electrical and software design, panel design and build, installation, commissioning and handover support to the customer.
- The Siemens products used on this project were already stock stores items at Cummins, i.e. S7-315-2DP, MP277 HMI and Moby-I RFID hardware.
- The PLC chosen also had to connect to the plant's new MES system, this was achieved using the CP343-1 Lean Profinet Module.



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Benefits for the customer:

- Downtime on the test cells has been reduced due to the improved fault diagnostics and by using PDIAG in conjunction with S7-Graph, the cell sequences are now easily visualised on the HMI to provide instant diagnosis of sequence stoppages.
- Custom HMI screens provide status of all test cell sensors and actuators without the need to enter the cell thereby aborting an engine test.
- The customer experienced greater throughput of engines in the test cell area after this upgrade.
- The implementation of the S7 PLC in tandem with the extremely reliable and robust Moby RFID system improved engine throughput as previously the manual inputting of engine data was commonplace thereby increasing cycle times.