



APPLICATION STORY: SHELL, BONNY ISLAND, NIGERIA

The Bonny Island Terminal Project in Nigeria is a new development comprising 24 oil storage tanks for **Shell Petroleum Development Corporation**. The main engineering contractor, Hyundai Heavy Industries, chose the Korean subsidiary of **Yokogawa Electric** to provide the control system, which includes the CENTUM CS3000 controller with **FOUNDATION fieldbus™** capability. The fieldbus network at the Bonny Island facility includes a total of 6,000 devices, of which 1,600 are located in Zone 1 hazardous areas.

Intrinsic safety was selected as the preferred protection method for the hazardous sector, with fieldbus power provided by **MTL's FISCO power supplies**. These are used in conjunction with the **2 way and 4 way intrinsically safe Megablock** and **FBT1-IS terminator**, to create fieldbus segments that may be 'live-worked' throughout without gas clearance procedures. **FISCO** (Fieldbus Intrinsically Safe Concept) delivers more current to the fieldbus than the earlier 'Entity' IS implementation, allowing as much as 265mA - sufficient to power at least 12 fieldbus devices per hazardous area trunk. Engineering effort is reduced by eliminating the need to calculate cable parameters, while retaining the conventional benefits of IS as the safest of all protection techniques.

MTL's FISCO solution is not limited to FISCO-certified fieldbus devices. 'Entity'-certified devices specified for the Bonny Island project are connected to the FISCO segments via **9323-SC spur connectors**, allowing the full range of available IS-certified devices to be used.

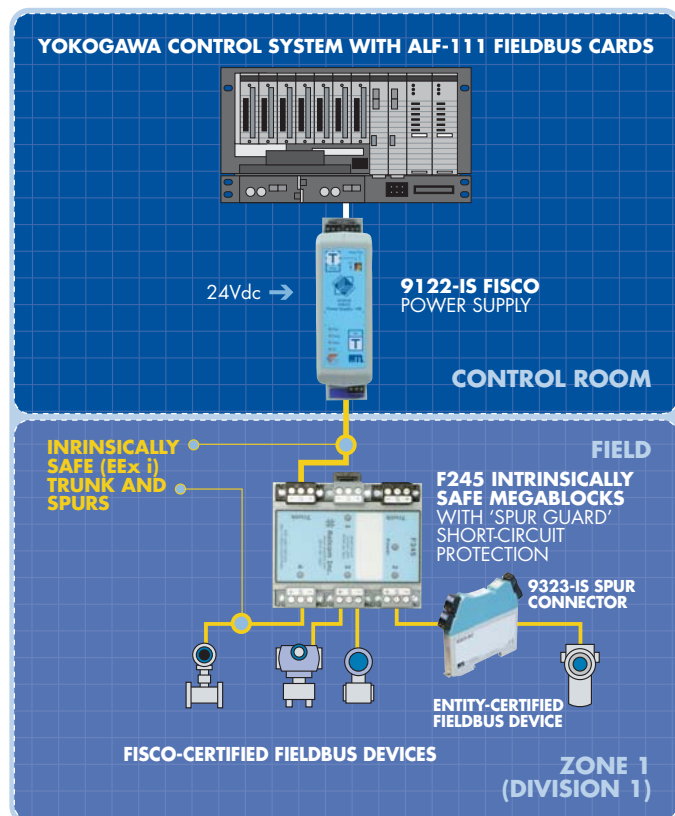
Electrical installations on the Nigerian coast are vulnerable to lightning-induced surge damage, so Hyundai specified surge protection for all the fieldbus segments. This was achieved using **FP32 surge protectors** that are specifically designed to be transparent to FOUNDATION fieldbus™ H1 communications, while providing protection for the field instruments, power supplies and fieldbus interface modules. The FP32 units are connected at each end of the fieldbus trunk and in the individual spurs to the fieldbus devices.



912x-IS FISCO POWER SUPPLY



FP32 FIELDBUS SURGE PROTECTOR



FISCO installation at Shell,
Bonny Island, Nigeria



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