

The ICS MUX VOS 200 is a rack-mounted remote I/O System, designed to record and output process signals between hazardous area sensors/actuators and a safe area automation system. Unlike conventional I/O systems which must reside in the safe area, the ICS MUX VOS 200 I/O modules may be installed directly in the hazardous area in general purpose cabinets called field stations. This frees up valuable space in the control room by eliminating cabinets to house I/O, signal conditioners, zener or transformer isolated barriers, and marshalling strips.

The field stations are supplied completely fitted, wired, and tested to customer specifications and are ready for operation upon delivery to the installation site. The close proximity of the field stations to the process area drastically reduces the length of cable and number of terminations required. Further reductions in junction boxes and transmitters for low-level circuits may also be realised.

Data exchange between these field stations and the automation system is over a high-speed, high-inte-

grity and intrinsically safe field bus. Depending on the preferred system architecture and bus protocol used, up to 125 field stations may be connected to one logical bus segment over a 2 km (1.2 mile) area. Each field station is capable of supporting 96 channels of signal data, each channel representing either one analog or up to twelve digital signals. This data can be retrieved via an RS 232/RS 422 or RS 485 serial interface using an automation specific, MODBUS (RTU), Profibus DP, R. STAHL Standard or later on Foundation Fieldbus protocol.

All connections between the field stations, field devices, and field bus are isolated and intrinsically safe to worldwide standards. This enables general purpose wiring techniques to be used thus eliminating the need for conduit and seals.

The field station cabinets are general purpose and the I/O provide direct intrinsically safe connections to the sensors and actuators. Live maintenance of the field station I/O, field bus, associated wiring, and field devices is permitted.

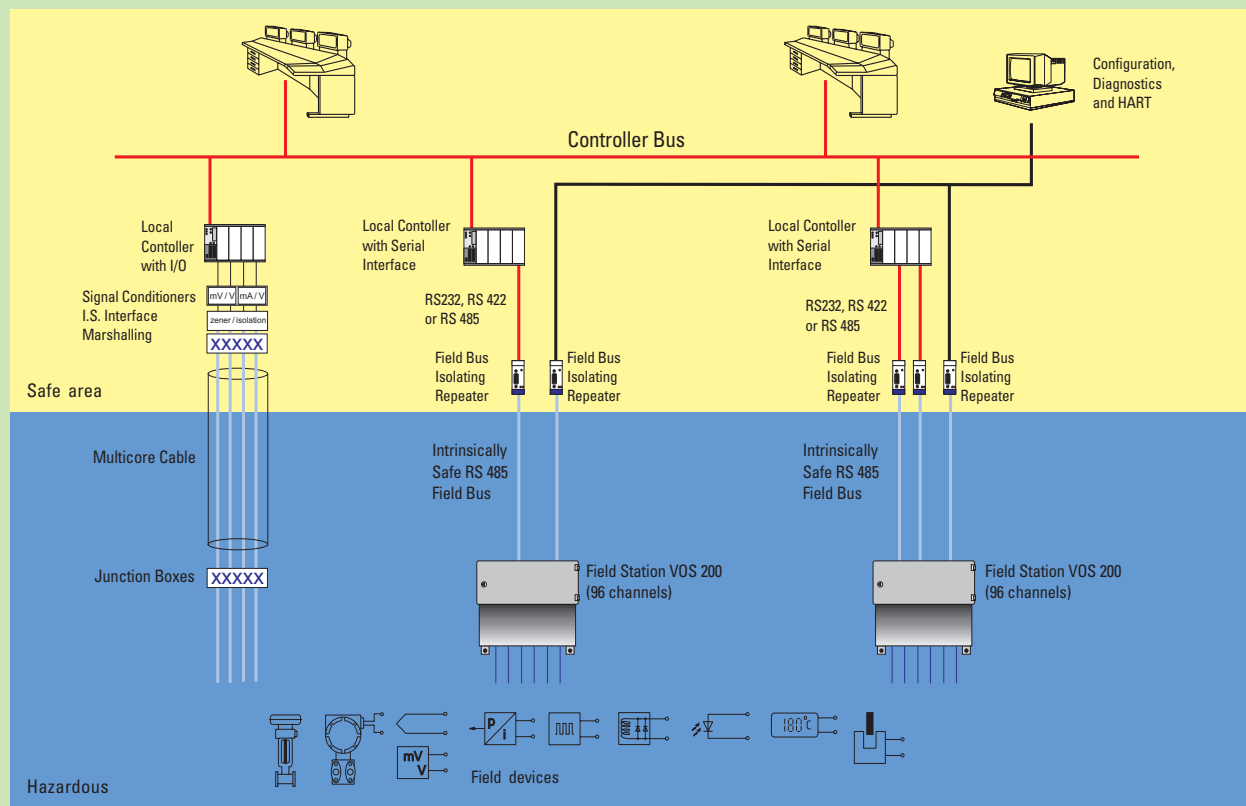


FIGURE 1. Conventional method of providing intrinsically safe connections to sensors and actuators located in a hazardous area. The local controller, I/O modules, signal conditioners, zener or transformer isolated barriers, and marshalling strips reside in cabinets installed in a central control room.

FIGURE 2 and 3. Two basic ICS MUX VOS 200 system topologies where the I/O are installed in the hazardous area and linked by an intrinsically safe field bus. The field bus may be installed non redundant or redundant to the local controller. Via a configuration bus all field stations in a system may be linked to a single PC workstation for configuration, diagnostics and live HART maintenance of field devices.

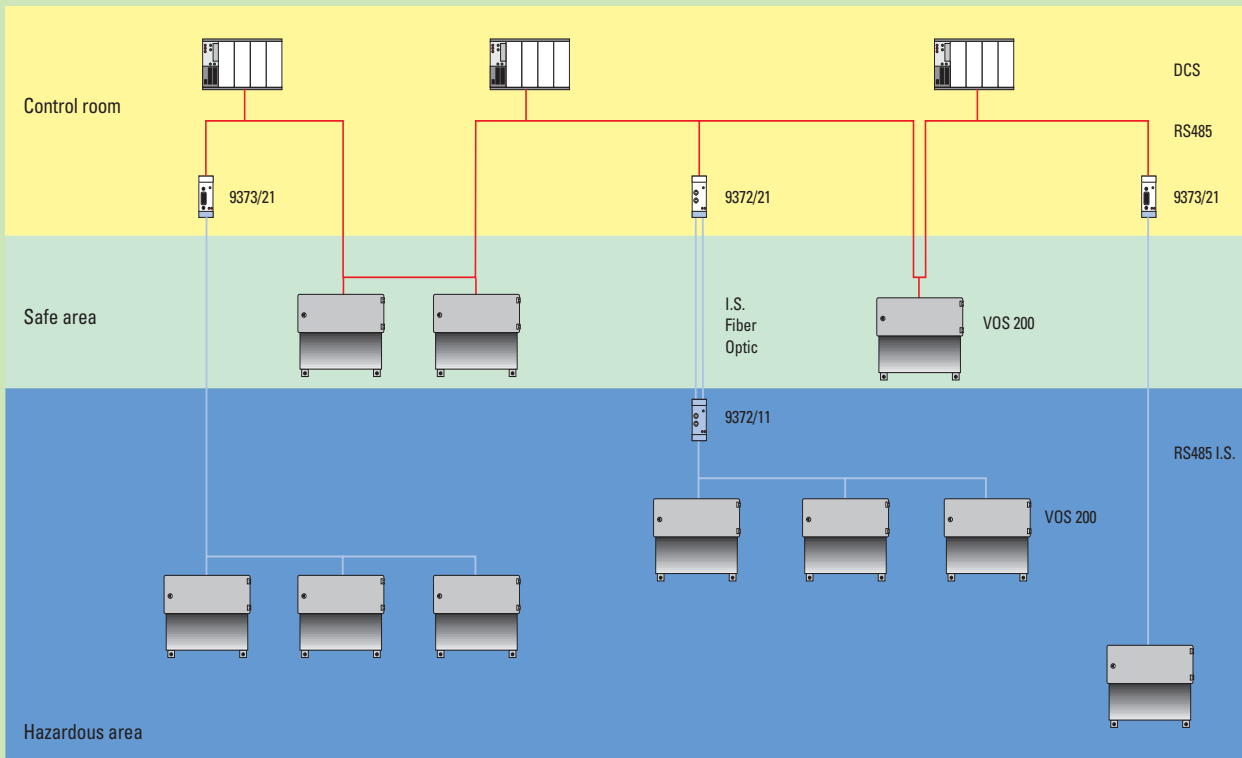


FIGURE 4. Installation summary of a ICS MUX VOS 200 system. Field stations may be multidropped, installed in the safe area or hazardous area, or connected via an intrinsically safe RS 485 or fiber-optic bus. All communication links (copper or fiber) to a local controller may be installed in a redundant manner.



Interface Driver Software to communicate with an Automation System

The ICS MUX is capable of interfacing with any automation system using one of the following protocols.

- Profibus DP
- AEG SEAB 1N
- MODBUS 584 (RTU)
- R. STAHL Standard

In addition to these a growing library of automation specific drivers for various DCS, PLC, and PC-based systems are also available. The following is a list of connections which are tested, released and field proven.

- ABB Taylor Mod 300, MP200, Master, Advant
- AEG Modicon 984, A 500, A350, A250
- Allen-Bradley PLC-5, SLC-500
- Eltag Bailey INFI 90, Freelance 2000, Digimatic
- DEC MicroVax
- Fisher-Rosemount Provox Plus, RS3, Delta V
- Foxboro Eckardt PLS80, I/A-Series
- GE Fanuc 90-30
- HIMA H50, H51
- Honeywell TDC3000, FSC
- Intellution FIX DMACS
- Simrad Kongsberg AIM1000, AIM 2000
- Siemens S5, S7, PCS 7, Teleperm M AS 235, TI 505
- Yokogawa Centum XL, uXL, CS