



Type 9503 Central unit

Data exchange between the automation system and the I/O Modules is handled by the central unit (ZE). This system consists of two modules installed in each field station system rack. Various bus topologies and redundancy levels are possible with the system.

Small to medium sized applications (30 to 300 points) are best handled by a single field station fitted with a Type 9503 central unit. This module consists of two processors linked by a dual-port RAM. An I/O processor is responsible for scanning the I/O installed in the field station via one internal 48 channel multiplexer. An extension port allows connection to one external Type 9508 Mux/Demux module, bringing the total field station capacity to 96 channels. Read/write operations are performed sequentially starting from channel 1 to n (max. 96), the cycle time depending on the quantity and type of installed I/O (130ms maximum). A complete digital image of the I/O data is thus available to a second, the communications processor.

The communications processor, is responsible for the transfer of this digital image to two RS 485 interfaces upon request from the automation system. Interface I is for use by a personal computer to configure and diagnose the field station parameters. It may also be used to communicate with HART-based field devices when using the Cornerstone Base Station. Interface II is for connection to the automation system. All data between this module and the automation system is transmitted at speeds up to 19.2 kBit/s for Modbus RTU and up to 1.5 MBit/s for Profibus DP.

Different communication protocols are supported by the central unit by changing the firmware or an extension module with a UART for the low speed protocols or with a communication specific chip for high speed protocols like Profibus DP. This allows with minor changes in hardware to switch between different communication protocols, also to upgrade to the latest fieldbus protocol.

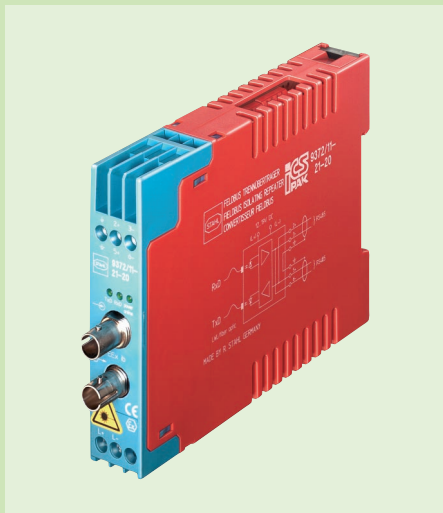
System reliability may be increased by adding a redundant 9503 module. In this case a serial interface provides a link between the two modules allowing each unit access to the other unit's memory.

The field bus is protected on the safe side by the Type 9373/21 or 9372/21 Fieldbus Isolating Repeater. It consists of a bidirectional repeater with integral galvanic isolation. The intrinsically safe RS 485 or fiber-optic field bus signal is converted to an RS 232, RS 422 or RS 485 for connection to the automation system serial port or to the PCs serial port. In the field station an intrinsically safe Fieldbus Isolating Repeater Type 9372/11 may be installed to convert the intrinsically safe fiber-optic field bus to an intrinsically safe RS 485 bus. With this technique various system configurations are possible, long run distances at high speeds may be covered by a fiber-optic link, local connections among field station and short distances are covered by a RS 485 link.

For the RS 485 link a shielded twisted pair cable is used, for high speeds a low capacitive cable should be used ($C' < 30 \text{ nF/km}$ like the specified Profibus cable). The fiber-optic link is preferably installed with a 50/125 μm , 62.5/125 μm or a HCS 200/230 μm fibers with ST connectors.



Type 9373
Fieldbus Isolating Repeater



Type 9372/11
Fieldbus Isolating Repeater