Integration**Facts**

Integration of Pepperl+Fuchs remote I/Os

Remote I/O modules

Overview

Characteristics
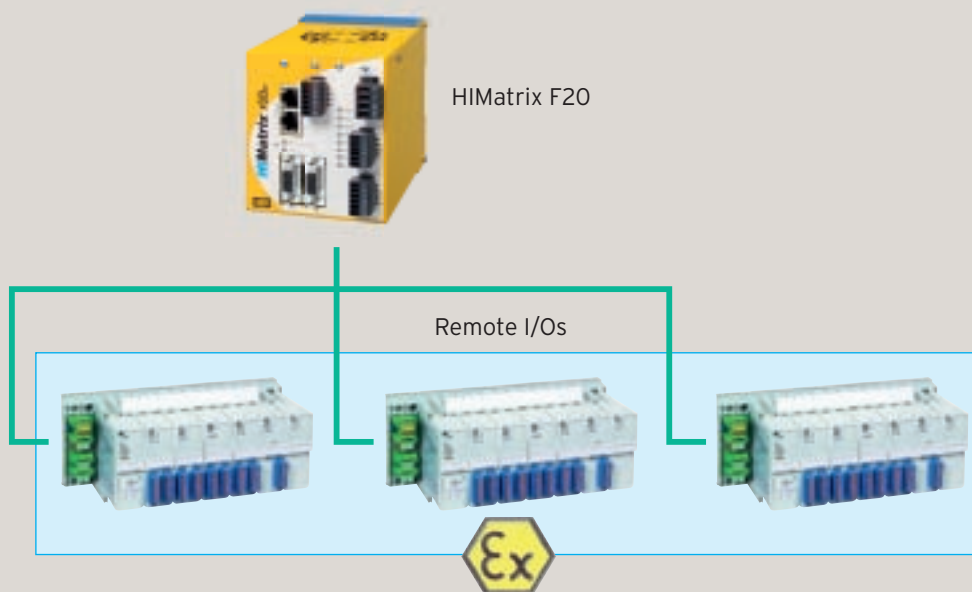Automatic configuration

HIMA safety systems
- HIMatrix F20
- HIMatrix F30
- HIMatrix F31 (Modbus TCP only)
- HIMatrix F35
- HIMatrix F60

Remote I/Os
- Pepperl+Fuchs LB
  (Ex Zone 2)
- Pepperl+Fuchs FB
  (Ex Zone 1)

Communication medium
- RS485, Modbus RTU
- Ethernet, Modbus TCP

HIMatrix F20

Remote I/Os

Profitable solution for non-safe applications in potentially explosive atmosphere

HIMatrix has the power to process safe logic (SIL 3) as well as controlling non-safe modules plus the necessary programs.

Modbus is one of the simplest and most efficient methods for integrating the modules of different manufacturers. Integrating Pepperl+Fuchs remote I/O modules ideally complements non-safe applications in

- Ex Zone 2 (LB series) and
- Ex Zone 1 (FB series).

Each HIMatrix controller with Modbus master RS485 allows connection to up to 120 Pepperl+Fuchs remote I/Os. Using Modbus TCP, up to 32 Pepperl+Fuchs remote I/Os can be connected.

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Pepperl+Fuchs modules and software

Pepperl+Fuchs offer LB and FB remote I/O modules which complies with protection class IP20 to IP66. They form a modular system for signal matching between field signals from the potentially explosive atmosphere and from the safe zone for controllers or control systems. Both modules can be directly connected to HIMatrix via Modbus.

- LB remote I/O stations are installed in zone 2 or 22.
- FB remote I/O stations are installed zone 1 or 21.

The LB/FB remote I/Os are configured using the Pepperl+Fuchs application software which enables the creation of import files for ELOP II Factory. Microsoft Office Excel version 97 and higher is required.

Start-Up
(Refer to the Pepperl+Fuchs manual, for more detailed information)

1. Enter the user name 'CGD' and the password 'Safety' to start the application software.

2. Connect your PC to the remote I/O's service bus. To do this, use the released RS485 converter (RS232: W&T 86201; USB: ICPCON i-7561). 'Connection Setup' starts a search run providing the connected remote I/Os.

3. Choose the remote I/O, and click the 'Load All From Comm Unit' menu function to read the parameters. (Do not use the planning parameters).

4. Move to the module data level and set the corresponding Modbus RTU/TCP address and the transfer parameters (with RTU only) in the device window associated with the bus coupler.

5. Use the TAG-No. in the corresponding device window to give the signals unique names, since these names will appear in ELOP II Factory.

6. Save the project and write the data to the remote I/O.

7. Use the 'Services/Generate HIMA CSV Files from Project' menu function to export the data in German or English. The files are saved in the same folder as the project.
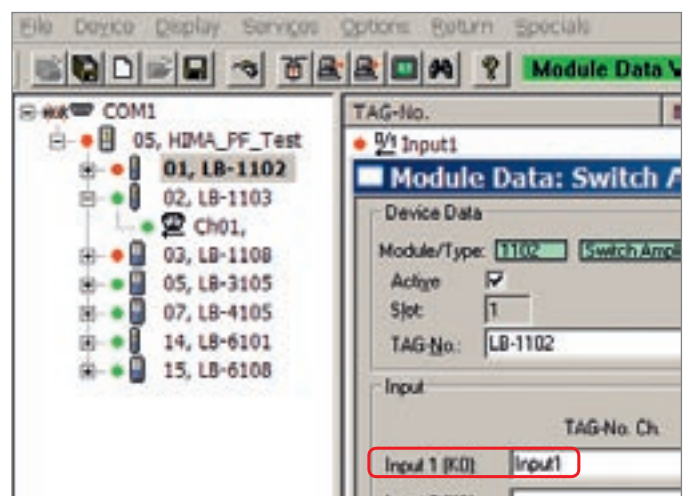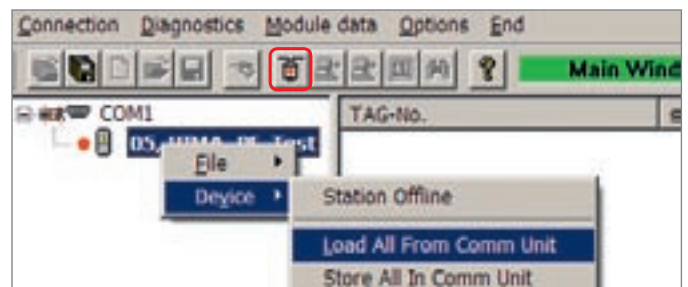
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HIMA modules and software

All HIMatrix controllers can be used with Modbus master. For this reason, integrating Pepperl+Fuchs remote I/Os is an ideal addition.
To use the Modbus master, enter the corresponding activation key in ELOP II Factory.
Once the CSV files have been generated in the Pepperl+Fuchs application software, they must be imported into ELOP II Factory using the delimiter ";".
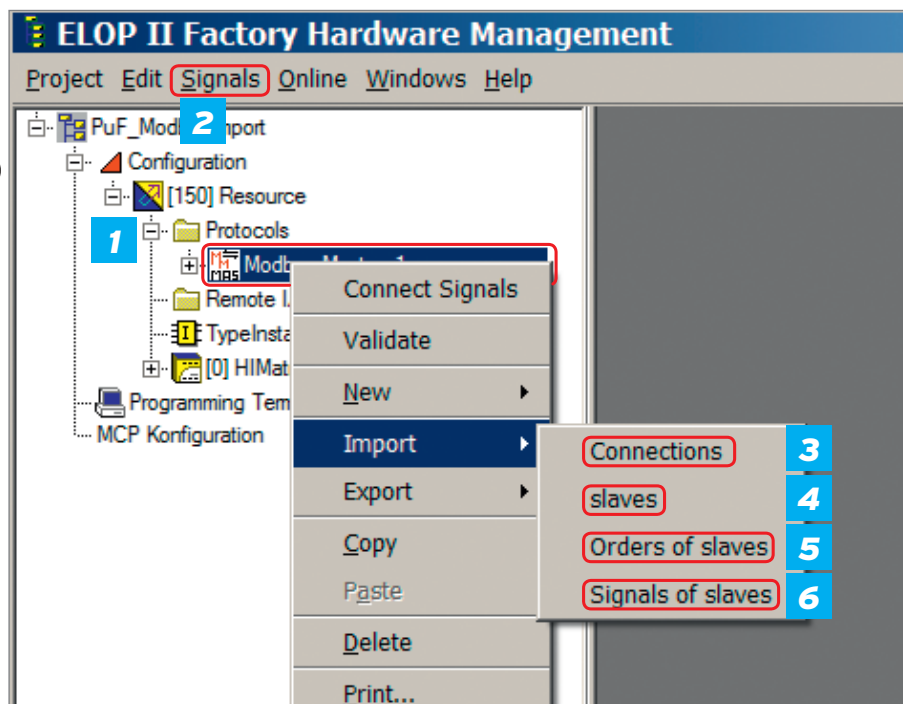
1. Add a Modbus master to the resource.

2. Import the **1SignalList** file into the signal list.

3. Import the **2Connections** file into the Modbus master.

4. Import the **3Slaves** file into the Modbus master.

5. Import the **4Orders** file into the Modbus master 'Orders of slaves'.

6. Import the **5Signals** file into the Modbus master 'Signals of slaves'.

7. If necessary, adjust the refresh rate value in the slave's Properties.

The transfer parameters set in ELOP II Factory and in the Pepperl+Fuchs must be identical. Double-click the remote I/O to set the station address and the transfer rates in the device data menu of the Pepperl+Fuchs application software and save them to the remote I/O.

Notes for using RS485:
The wiring rules are consistent with RS485. Pins 3 and 8 of the male D-sub 9 connector are connected.
The field bus interface in use must be set in ELOP II Factory.

Notes for using Ethernet:
The IP addresses are assigned separately via an Ethernet connection. The addresses entered in the Pepperl+Fuchs application software are used to document and create ELOP II Factory import files.

The signals from the connected Pepperl+Fuchs modules are then available in the HIMatrix controller program.

Advantages

Import

To facilitate non-safe communication, the configuration is automated. For this purpose, Pepperl+Fuchs offers an application software which reads the configuration of the connected LB/FB remote I/O modules and exports it for ELOP II Factory. This is the best option to:

- ensure data consistency,
- avoid typing errors and
- minimize the integration time. The time needed for one module is virtually identical to that needed for several modules.

Open integration enables users to choose the best device for their application, which results in efficient, economical solutions.
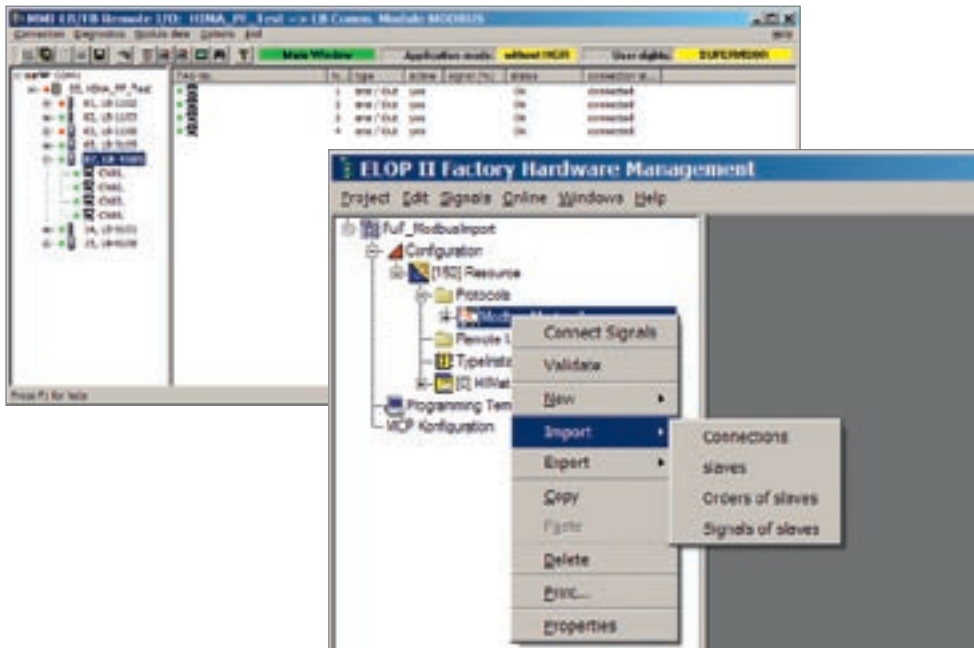
Protocol

Modbus RS485
- Data transfer at up to 38,400 KBit/s
- Robust tried-and-tested industrial network
- Master/slave communication

Modbus TCP

- Data transfer via Ethernet (10 Mbit/s)
- The widest range of infrastructure available
- Construction of various network topologies is possible
- Ideal network for remote access and remote maintenance

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