The Kit is suitable for development and test laboratories as well as for training purposes. It can be used to build up a complete communication system for all Real-Time Ethernet systems. With the included netANALYZER, the performance and function of individual systems or system components, that operate according to Ethernet II IEEE 802.3 specification or corresponding bus systems, can be displayed.

The Kit includes a comprehensive manual, which allows an easy quick-start. With the cifX-PC card and the NXIO-devices following Real-Time Ethernet systems can be realized:
**netANALYZER - Measuring what Distinguishes Real-time Ethernet**

- Non-reactive recording
- Highly precise time stamping with 10 ns
- All important network data at a glance
- Graphic analysis of time-referenced parameters via timing analysis
- Find bottlenecks in the network via network load analysis

The netANALYZER is a tool for low-level analysis of real-time Ethernet networks. The kit includes a hardware which captures the messages on the network, as well as a graphical user software for Windows with extensive analysis functions. The open driver API also enables using the recording hardware in your own user-specific applications. The Test Access Points (TAPs), which are integrated in the netANALYZER hardware ensure non-interaction on the Ethernet network during the measuring process. There is no additional frame delay and the jitter is not affected. The non-interaction guarantees unaltered data contents, even in fault cases. All telegram data and telegram errors occurring on the network are transmitted to the field device without any change.

**NXIO - One I/O-Board for all Real-Time Ethernet Systems**

- I/O Board for All Real-Time Ethernet System
- Simple system selection by loading the Firmware again
- Ideal for Evaluating Different Ethernet Systems or Building Test Assemblies
- Boards are directly connectable without cable

Like for fieldbus systems, Ethernet based communication systems provide different solutions and have their specific technically approaches. Device manufacturers need to make themselves familiar with the new technology, evaluate pros and cons of each system and decide what can be used best for their application or product. In some instances, the market makes the decision and the device manufacturer is forced to create test scenarios with multiple network nodes in a real-world system. The slave devices used in this network should be easy to use, inexpensive and flexible like the NXIO board. The NXIO is a digital I/O board for all Ethernet based fieldbus system and utilizes networX on chip. A digital I/O board for all Ethernet systems configurable by loading a new Firmware from the provided MMC Card.

**PC-card cifX reduced on the maximum**

- For all major network protocols
- Single hardware for all Real-Time Ethernet protocols
- Minimum logistic and administrative effort through least product variety
- Quick & Easy change of protocol by loadable firmware

With the cifX communication interface, the user will have a unified standard for all Real-Time Ethernet and Fieldbus systems on different hardware platforms. The complete protocol stack will be executed on the PC card and data exchange to the host will be done via Dual-Port-Memory or DMA. Hilscher offers the cifX PC communication cards with PCI, PCI Express, Mini PCI, Mini PCI Express, PCI-104, PC/104, Compact PCI and Low Profile PCI Express interface. With a rotary switch an easy and reliable slot assignment can be done for the PCI and PCI Express types. A complete software package including a single FDT/DTM based configuration tool for all products and networks, documentation, loadable firmware and driver tool-kit is always in the scope of delivery. Due to the own network controller netX a 10-years delivery is guaranteed.

**SYCON.net as configurator based on FDT/DTM**

- Stand-alone or embedded in other engineering tools
- Protocol neutral interface to the PLC
- Communication and device DTMs for Hilscher assemblies
- DD Interpreter DTMs for devices from other manufacturers
- Configurable gateway-DTMs with numerous options protocol combinations

Manufacturer and protocol neutral FDT technology is well suited for efficient, consistent engineering in the factory and in process automation. FDT/DTMs facilitate a flexible integration of the field unit in various engineering environments. With SYCON.net, a configuration, parameterizing and diagnostic tool, Hilscher offers an FDT based total solution. The components were developed by Hilscher engineers having fieldbus expertise. Device DTMs of other manufacturers seamlessly integrate in SYCON.net. With eight fieldbus and Real-Time-Ethernet systems, SYCON.net supports the widespread networks on the market and is in control of complex and heterogeneous structures. By using the inherent flexibility on which the components are based and built on open FDT technology, scalable and economical solutions can be offered.
The documentation provided with the kit describes in detail and step-by-step how to setup the different real-time Ethernet systems. The design and cabling of the hardware is explained in just as much detail, as are the necessary measures in the SYCON.net configurator needed for parameterizing the real-time Ethernet system. A further document deals with analyzing the configured networks with the aid of the netANALYZER. By means of practical examples, the user receives step-by-step instructions outlining the necessary actions to be performed.

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### Scope of delivery

Robust plastic case equipped with the following contents:

- 1 x DVD Real-time Ethernet Kit
- 1 x DVD netANALYZER
- 1 x DVD Communication Solutions
- 1 x PC card cifX Real-time Ethernet CIFX 50-RE (Master)
- 1 x NXIO 50-RE/CL board (1 RJ45 connector left)
- 1 x NXIO 50-RE/CR board (1 RJ45 connector right)
- 1 x NXIO 50-RE/CM board (without a RJ45 connector)
- 2 x NXIO 50-RE/CA boards (2 RJ45 connectors and current connection)
- 1 x Power supply NXAC Power for NXIO- 50-RE boards
- 5 x Ethernet connection cables
- 1 x Analyzer card NANL-C500-RE (to Article 7320.100)
  or
- 1 x Analyzer box NANL-B500E-RE (to Article 7320.110)
- 1 x Power supply TR15RA240

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### Article description

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### Technical Data

#### Scope of delivery

Description of a test design taken from the manual „Real-Time-Ethernet Kit („Real-time Ethernet Kit Analysis Examples“)“