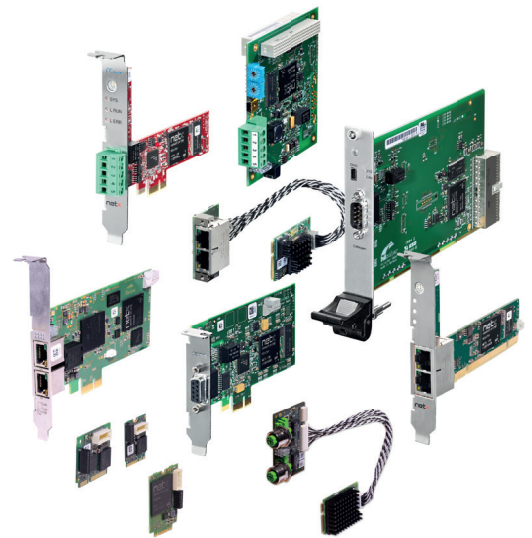


# cifX

PC cards for Real-Time Ethernet and Fieldbus

- All common PC card formats
- All major industrial protocols
- One hardware for all Real-Time Ethernet protocols
- Master and Slave
- Wide range of device drivers
- Same application interface for all networks



## PC cards in all formats for all protocols

The cifX PC card family is the unified standard supporting all Real-Time Ethernet and Fieldbus systems for PC based automation.

The protocol stack is executed autonomously on the PC card and process data exchange with the host is done via Dual-Port-Memory or DMA (Direct Memory Access). Thanks to the common Hilscher Platform Strategy all PC cards use the same drivers and tools - independent of protocol and card format. Thanks to the netX technology there is exactly one hardware needed for the realization of all Real-Time Ethernet protocols. A change of the communication protocol is done by just loading a different firmware.

Always the right solution! Different cable lengths, M-12 connectors, additional NVRAM, extended temperature range, 2-channel cards or detached network interfaces – numerous hardware options always offer the right solution for your application. On top, a wide range of device drivers and a C-Toolkit, free of charge, are available.












The PC based automation is evolving and the Hilscher cifX PC card family keeps the pace. With continuous expansion for new standards, protocols and formats, as M.2, mini PCIe halfsize or CC-Link IE Field, customers are always prepared for new market demands.



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# Most flexible PC card portfolio on the market - cifX


## Card formats

|  |  |
|--|--|
|    | <b>PC/104</b><br>-20 ... +70°C<br>+3,3 V / typ. 650 mA<br>97,0 × 91,0 × 24,0 mm                          |
|    | <b>PCI-104</b><br>-20 ... +70°C<br>+3,3 V / typ. 650 mA<br>97,0 × 91,0 × 24,0 mm                         |
|    | <b>PCI</b><br>-20 ... +70°C<br>+3,3 V / typ. 650 mA<br>120,0 × 86,0 × 18,5 mm                            |
|    | <b>Compact PCI</b><br>-20 ... +70°C<br>+3,3 V / typ. 650 mA<br>162,5 × 100,1 × 20,0 mm                   |
|   | <b>Mini PCI</b><br>-20 ... +70°C<br>+3,3 V / typ. 650 mA<br>60,0 × 45,0 × 9,5 mm                         |
|  | <b>PCI Express</b><br>-20 ... +55°C, -20 .. +70°C<br>+3,3 V / typ. 800 mA<br>120,0 × 86,0 × 18,5 mm      |
|  | <b>Low Profile PCI Express</b><br>-20 ... +65°C<br>+3,3 V / typ. 800 mA<br>119,0 × 69,0 × 18,5 mm        |
|  | <b>Mini PCI Express</b><br>-20 ... +55°C, -20 ... +70°C<br>+3,3 V / typ. 800 mA<br>51,0 × 30,2 × 11,0 mm |
|  | <b>M.2 2230</b><br>-20 ... +70°C<br>+3,3 V / typ. 330 mA<br>30,0 × 22,0 × 7,0 mm                         |
|  | <b>M.2 3042</b><br>-20 ... +65°C<br>+3,3 V / typ. 650 mA<br>42,0 × 30,0 × 7,0 mm                         |
|  | <b>Mini PCIe halfsize*</b><br>-20 ... +70°C<br>+3,3 V / typ. 330 mA<br>26,8 × 30,0 × 7,2 mm              |

\* Available in 2023


## Hardware-Options

- **Extended temperature**  
For the usage in high temperature environments, all cifX cards support an extended temperature range
- **Additional NVRAM**  
Mini PCI Express and Low Profile PCI Express types can be ordered with an additional NVRAM for 128 kByte remanent data
- **Rotary Switch**  
A rotary switch on PCI, PCI Express and Low Profile PCI Express cards allows an easy and reliable slot assignment
- **2-Channel Cards**  
For compact systems with limited internal slots, 2-channel cards are available



**AIFX-RE/M12 with M12 connectors**

Alternatively, all cards with a detached Real-Time Ethernet network interface are available with D-coded M12 connectors

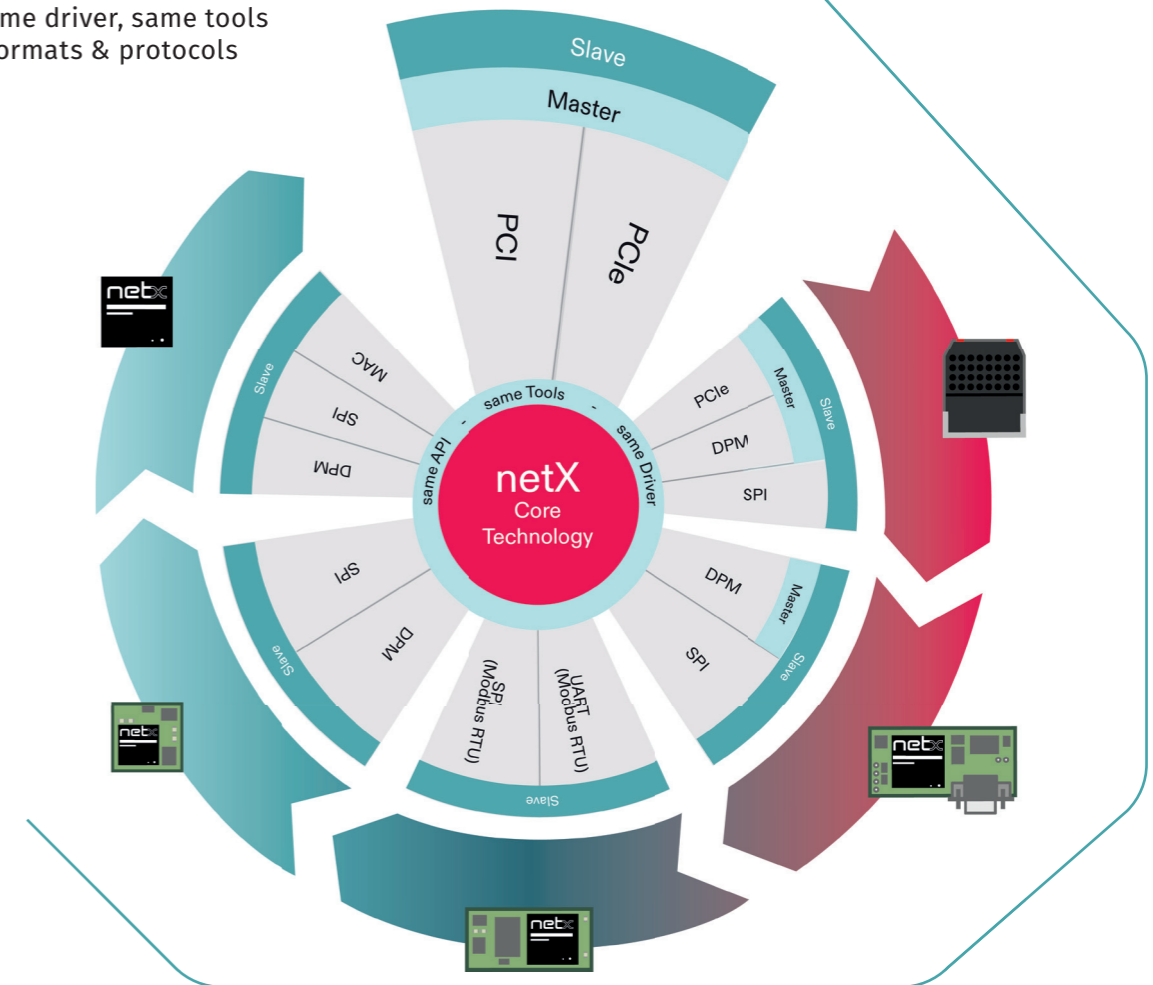


Kommunikation & Vernetzung

\* Product of the year award 2021 by Computer & Automation Category: Communication & Connection

## Platform Strategy

- Same API, same driver, same tools for all card formats & protocols



## Detached network interface

- **AIFX-RE with RJ45 connectors**  
PCI-104, PC/104, mini PCI, mini PCI Express, mini PCIe halfsize and M.2 cards come with a detached network interface, which is equipped with RJ45 connectors
- **Different cable lengths**  
For flexible mounting the detached network interface can be delivered with cable lengths of 15 or 20cm for Real-Time Ethernet and 15 or 30cm for Fieldbus

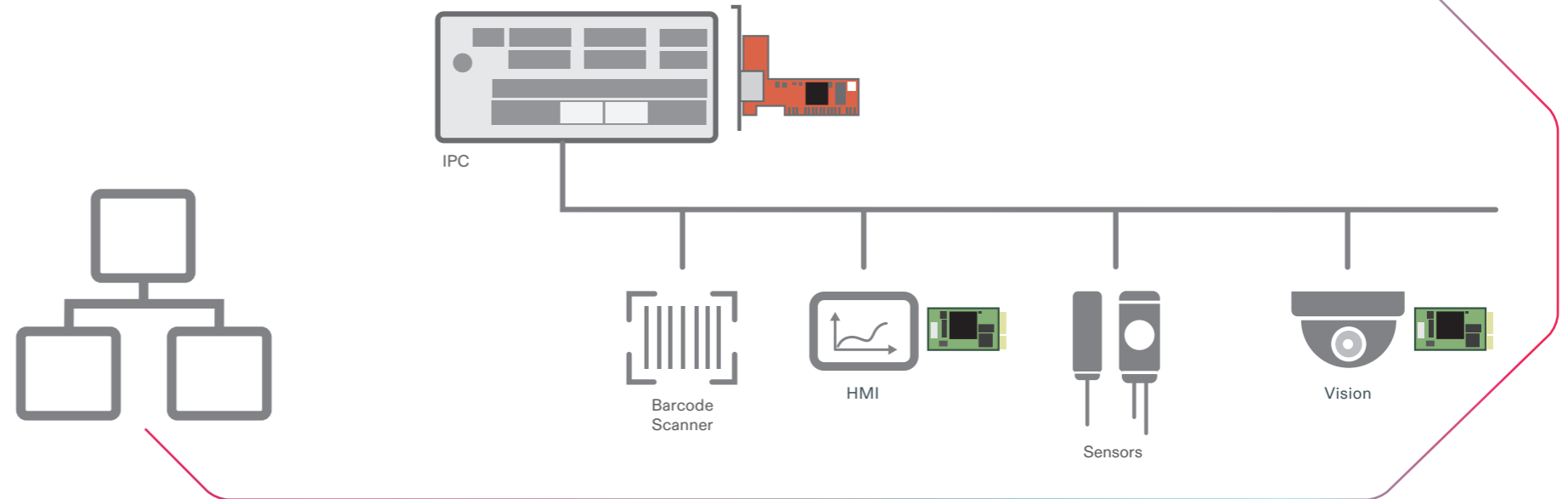


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# Unique diversity & simplicity – for all use-cases

## Universal PC card for Master & Slave

Hilscher's PC cards cifX are based on the multiprotocol chip netX 100 and are designed as so called universal cards. Means the same card can be used as Master or as Slave, respectively one hardware supports all Real-Time Ethernet systems - all using the same application interface. A change of functionality is done by just loading an appropriate firmware and adding a software license for master functionality. Dedicated PC cards, as for CC-Link IE Field or netX 90 based cards, are designed for Slave functionality only.



## Real-Time Ethernet & Fieldbus protocols

As specialist for industrial communication Hilscher offers the largest selection of protocols used in the factory automation. Besides traditional Fieldbusses, all major Real-Time Ethernet protocols are available as Master or Slave.



## Device Drivers

For a quick and easy integration Hilscher offers a wide range of device drivers. Besides a C-Toolkit free of charge, drivers for all relevant operating systems, as well as softPLC drivers from 3rd party suppliers, are available.

## Areas of use



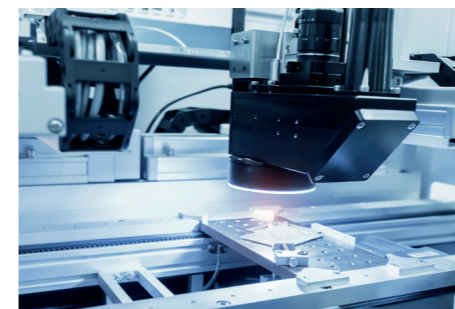
### Industrial-PC

- Plant control or local machine control
- Independent of the IPC - all formats and protocols as Master & Slave
- Same API and drivers for all cards



### HMI Panels

- Monitoring and machine operation
- One hardware for all Real-Time Ethernet systems
- Wide range of device drivers



### Vision

- For small & compact systems, e.g. smart cameras
- Cards for extended temperature range
- Smallest multiprotocol PC card on the automation market



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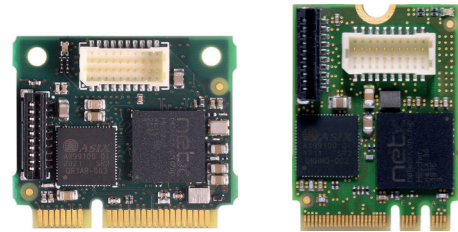
# What's new?



Note: Original size

## cifX Master & Slave solution in M.2 3042 format

- Industrial master and slave communication for M.2 PCI Express sockets
- Multiprotocol card for various Real-Time Ethernet and Fieldbus protocols
- Optimized for small & compact systems
- Predestined for controlling, monitoring and flexible PC-based applications



Note: Original size

## cifX in M.2 2230 and mini PCIe halfsize format

- Smallest multiprotocol PC cards on the automation market with a size of 22x30 mm resp. 30x26,8 mm
- Multiprotocol card for various Real-Time Ethernet and Fieldbus protocols
- Optimized for extended temperature-, energy- and space-sensitive slave applications



## AIFX-REVM12

- For high protection in harsh environments
- Ratings up to IP67 in customer designs
- Available for all Real-Time Ethernet types with detached network interfaces

# Product Matrix- All formats and all networks

| System bus<br>Product                            | Processor | Universal card<br>(Master & Slave) | 451 | CANopen         | CC-Link | DeviceNet       | PROFINET        | CC-Link IE | CC-Link IE Basic | EtherCAT        | EtherNet/IP     | ETHERNET POWERLINK | Modbus          | PROFIBUS        | SERCOS | NVRAM | 2-Channel       | M12-Connector |
|--|-----------|------------------------------------|-----|-----------------|---------|-----------------|-----------------|------------|------------------|-----------------|-----------------|--------------------|-----------------|-----------------|--------|-------|-----------------|---------------|
| PC/104<br>CIFX 104                               | netX 100  | ✓                                  | ✗   | ✓               | ✓       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✗               | ✓             |
| PCI 104<br>CIFX 104C                             | netX 100  | ✓                                  | ✗   | ✓               | ✓       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✗               | ✓             |
| PCI<br>CIFX 50                                   | netX 100  | ✓                                  | ✓   | ✓               | ✓       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✓ <sup>4)</sup> | ✗             |
| Compact PCI<br>CIFX 80                           | netX 100  | ✓                                  | ✗   | ✓               | ✗       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✗               | ✗             |
| Mini PCI<br>CIFX 90                              | netX 100  | ✓                                  | ✗   | ✓               | ✓       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✗               | ✓             |
| PCI Express<br>CIFX 50E                          | netX 100  | ✓                                  | ✓   | ✓               | ✓       | ✓               | ✓               | ✓          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✓ <sup>4)</sup> | ✗             |
| Low Profile PCIe<br>CIFX 70E                     | netX 100  | ✓                                  | ✗   | ✓               | ✗       | ✓               | ✓               | ✓          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✓     | ✗               | ✗             |
| Mini PCI Express<br>CIFX 90E                     | netX 100  | ✓                                  | ✗   | ✓               | ✓       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✓     | ✓ <sup>4)</sup> | ✓             |
| M.2 2230 Key A+E <sup>2)</sup><br>CIFX M223090   | netX 90   | ✗                                  | ✗   | ✓               | ✗       | ✓               | ✓               | ✗          | ✗                | ✓               | ✓               | ✗                  | ✓               | ✓               | ✗      | ✗     | ✗               | ✗             |
| M.2. 3042 Key B+M<br>CIFX m3042100               | netX 100  | ✓                                  | ✗   | ✓               | ✓       | ✓               | ✓               | ✗          | ✓                | ✓               | ✓               | ✓                  | ✓               | ✓               | ✓      | ✗     | ✗               | ✓             |
| Mini PCIe halfsize <sup>2)</sup><br>CIFX HPCI 90 | netX 90   | ✗                                  | ✗   | ✓ <sup>5)</sup> | ✗       | ✓ <sup>5)</sup> | ✓ <sup>5)</sup> | ✗          | ✗                | ✓ <sup>5)</sup> | ✓ <sup>5)</sup> | ✗                  | ✓ <sup>5)</sup> | ✓ <sup>5)</sup> | ✗      | ✗     | ✗               | ✗             |

1) Master only  
 2) Slave only  
 3) also MPI  
 4) 2-Channel card available in following combinations:  
 2ASM, 2DR, 2CO, 2DN, 2DP\CO, 2DP\DN, 2CO\DN  
 5) Available in 2023



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# Product Information

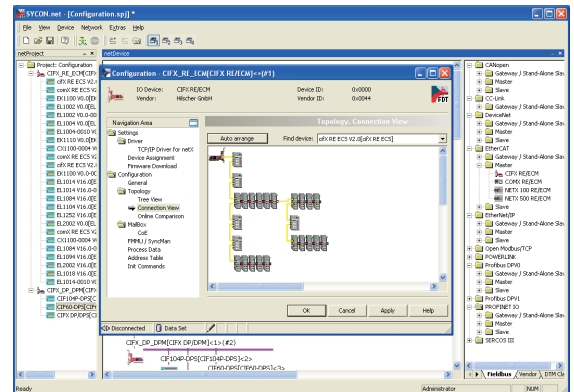
## Technical Data

### Scope of delivery

A complete software package is always included in the scope of delivery. This package consists of one FDT-based configuration tool (IEC standard) for all products and networks, loadable firmware, documentation and a driver toolkit. Numerous drivers for different operating systems are also available.

### Configuration

- One tool for all products and automation networks
- Configuration of Master and Slave
- Based on common FDT/DTM standards
- Including topology editor for PROFINET I/O IRT Controller
- Graphical and intuitive configuration tool for a simple and fast commissioning



### Technical Data

#### Weight

max. 150 g

#### Certification

CE Sign, RoHS, Reach, UL, UKCA

#### Emission

EN 55011:2009 + A1:2010, CISPR 11, Class A

#### Galvanic Isolation

potential free isolated

#### Dual-Port-Memory

64 kByte, 8-/16 bit

#### LED Indicators

SYS, COM 0, COM 1, Link, Rx/Tx

#### \ET

extended temperature range

#### \MR

128 kByte MRAM

#### \F

detached network interface

#### \M12

detached network interface with M12-connectors

#### \20

20 cm connection cable

#### \30

30 cm connection cable

### Product Overview

#### CIFX 50-XX

PCI, 33 MHz, DPM, IO-DMA

#### CIFX 50E-XX

PCI Express, One-Lane-Port

#### CIFX 70E-XX

Low Profile PCI Express, One-Lane-Port

#### CIFX 80-XX

Compact PCI, 33MHz, DPM, IO-DMA

#### CIFX 90-XX\F

Mini PCI, 33 MHz, DPM, IO-DMA

#### CIFX 90E-XX\F

Mini PCI Express, One-Lane-Port

#### CIFX 104-XX\*

PC/104, 33 MHz, DPM

#### CIFX 104C-XX\*

PCI 104, 33 MHz, DPM, IO-DMA

#### CIFX M223090AE-XX\F

M.2 2230 Key A+E PCI Express, One-Lane-Port

#### CIFX M3042100-XX\F

M.2 3042 Key B+M PCI Express, One-Lane-Port

#### CIFX HPCI90-XX\F \*\*

Mini PCI Express halfsize, One-Lane-Port

*Note: All technical data may be changed without further notice*

*\*\* Available in the variants: \F, -R, -R\F*

*\*\* Available in 2023*



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