

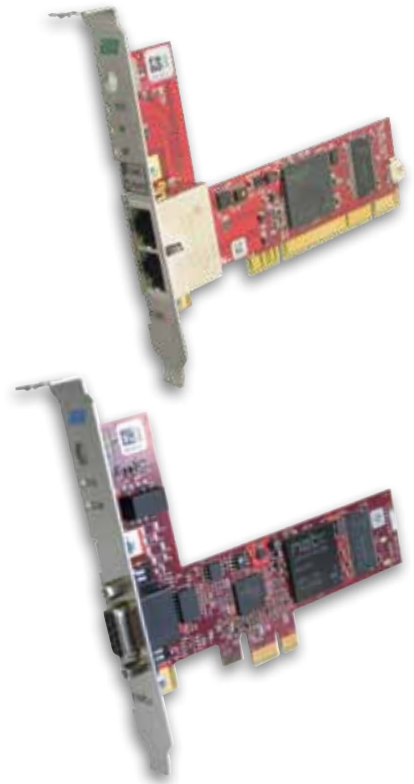
# cifX -

# Communication Interface

## PC cards for Real-Time-Ethernet and Fieldbus

### Highlights

- For all major network protocols
- Available in all common PC card formats
- Single hardware for all Real-Time-Ethernet protocols
- Minimum logistic and administrative effort through least product variety
- Comprehensive accessories (OPC server & driver for different OS)
- Same software host interface for all protocols
- Quick & Easy change of protocol by loadable firmware



### PC cards in all formats

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 or PCI Express, Mini PCI or Mini PCI Express, PCI-104, PC/104 or Compact PCI interface. With a rotary switch an easy and reliable slot assignment can be done for the PCI 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.

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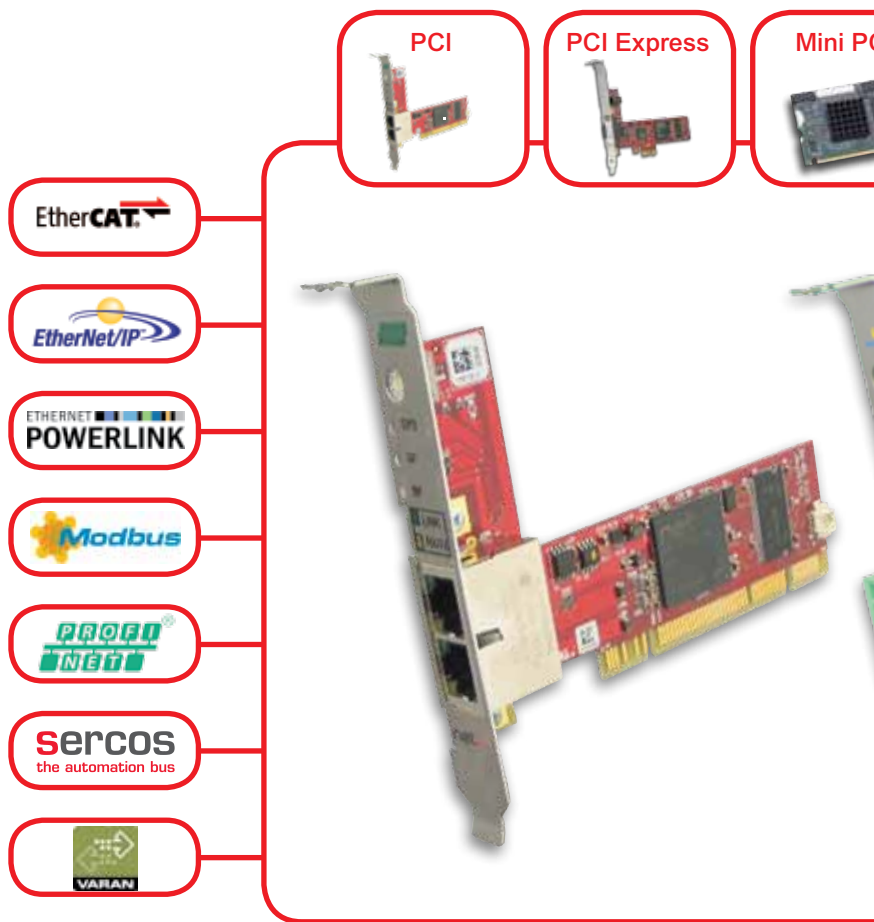
## Communication for PC based Automation

### cifX for Real-Time-Ethernet

Ethernet in industrial automation technology promised transfer of huge amounts of data through all levels of the communication pyramid and, at the same time, to benefit from low cost office components.

The reality is that various industrial automation systems demand determinism, minimal jitter and a line topology. This implies the use of additional hardware, so standard Ethernet components cannot be used throughout these applications. Often a ten-year commitment of availability for these products is requested by the industry and therefore specific PC hardware is used in automation applications.

The cifX PC card series offers a solution that supports a broad variety of real-time Ethernet systems. It utilizes the netX controller chip and a SDRAM and provides maximum performance, functionality and flexibility at a fair price.

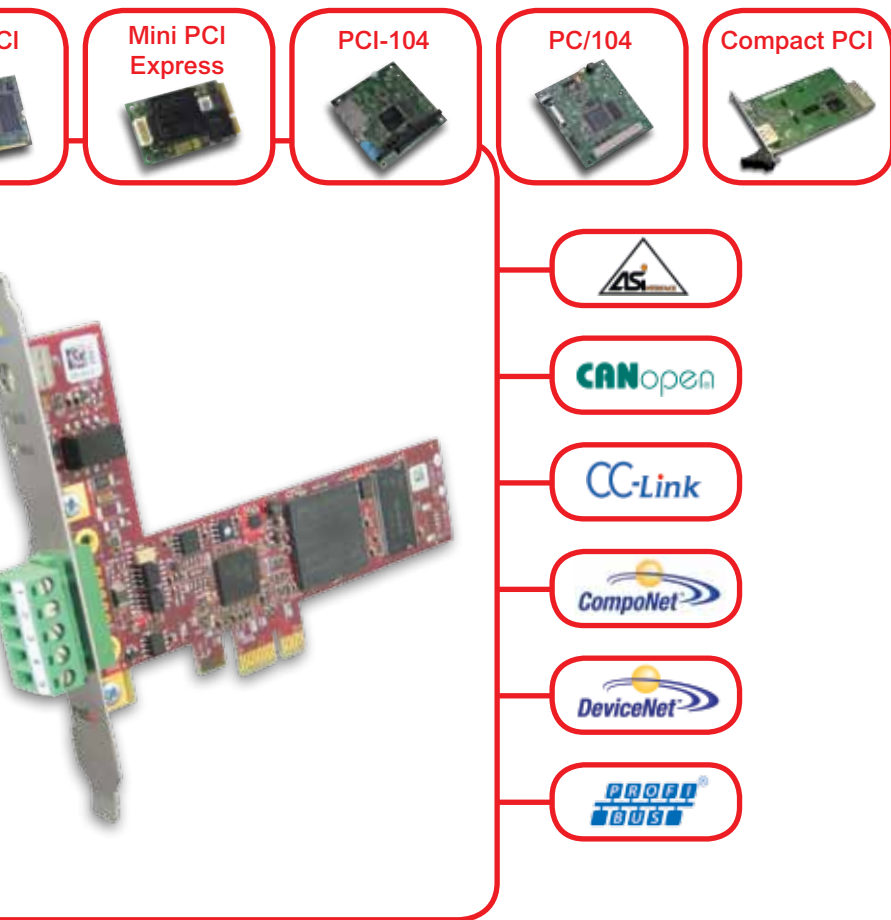


Real-Time-Ethernet Protocol

EtherCAT	Slave	Master
Slaves max.	200	200
Cyclic Data max.	512 Bytes	11520 Bytes
Acyclic Data	SDO Master/Slave SDO Slave/Slave	CoE (CANopen over EtherCAT) Up-/Download, max. 1500 Bytes
Functions	COE Emergency Complex Slave	Get OD List Emergency Topology: Line
	3 FMMUs and 4 SYNC-Manager	Distributed Clocks
Powerlink	Controlled Node/Slave	
Cyclic Data	max. 2980 Bytes	
Acyclic Data	SDO Up-/Download	
Functions	SDO over ASND and UDP Poll Request/Response Time 1µs Version V2	
PROFINET	IO Device	Controller
IO Devices max.	2048 Bytes (IOCR)	128
Cyclic Data max.	Read/Write Record, max 1024 Bytes/Telegram	11472 Bytes
Acyclic Data	Alarmtreatment	Read/Write Record, max. 4096 Bytes/Request
Functions	DCP Class 1&2 (unsynchronisiert) Class 3 (synchronisiert) Context Management by CLRPC	minimum cycle time 1 ms Alarmtreatment DCP Context Management throug CLRPC
Topologydetection	LLDP, SNMP V1 MIB 2, Physik. Device	Diagnostic, max. 200 Bytes/Telegram per Device one buffer for diagnostic data available

EtherNet/IP	Adapter/Slave	Scanner/Master
Cyclic Data max.	1008 Bytes	11472 Bytes
Unscheduled Data max.	1400 Bytes per Telegram	504 Bytes per Telegram
Functions	max. 8 Connections one I/O Connection Cyclic Connection UCMM supported DHCP, BOOTP	max. 64 Connections Cyclic Connection UCMM class 3 supported DHCP, BOOTP
Server Services	Get_Attribute_All/Single Set_Attribute_All/Single	Get_Attribute_Single/All Set_Attribute_Single/All
Modbus TCP	Client, Server	
Function Code	1, 2, 3, 4, 5, 6, 15, 16, 23	
Register (16-Bit)	max. 121, 123 or 125 Register per Telegram	
Coil (1-Bit)	max. 1968 or 2000 Coils per Telegram	
Message Mode	Server, In/Out-Data Image not used	
E/A-Modus Server	max. 11520 Byte E/A Daten	
SERCOS III	Slave	Master
Slaves max.	400 (incl. Connection Control)	511
Realtime Data	Service Channel Phase Run Up, Synchronization min. Cyclic 250 us max. 8 Subdevices	11520 (incl. Connection Control) Service Channel Phase Run Up, Synchronization min. Cyclic 250 us Bus Scan
Acyclic Data	SCP_FixCFG, SCP_VarCFG	
Functions	FSP_IO, FSP_Drive	
Version	V1.1.2	1.1.1 / 1.1.2
VARAN	Client	
Cyclic Data max.	256 Byte IN/ 256 Byte OUT	
Functions	PLL functionality to synchronize client application with VARAN network; integrated EMAC for IP data exchange with client application; integrated 2 Port-Splitter for daisy chain topology support	
Version	V1.1.1.0	

Note: The protocols are delivered as loadable Firmware on the provided DVD.



## cifX for Fieldbus

Fieldbus technology with its various standards is an established technology and will coexist for many years beside the upcoming Real-Time systems. With collected experience in fieldbus technology over the last 15 years and more than fifty thousands PC cards sold Hilscher introduces the next generation of cifX communication interfaces:

They are based on the high sophisticated netX 100 network controller and differ from each other only in the physical interface. They provide maximum performance, functionality and flexibility for the best price-performance ratio.

By using the Hilscher own network controller a ten-year availability is guaranteed.

AS-Interface	Master	
Slaves max.		62
Cyclic Data max.	Digital	62 Byte (4 Bit/Byte)
	Analog	31 Slaves x 4x16Bit
Acyclic Data		220 Bytes/Request
Functions		Transactiontypes 1-5
Version	3.0	Profile for ext. Master: M4

CC-Link	Slave
Stationtype	Remote Device Station
Cyclic Data max.	368 Bytes IN and OUT
IN/OUT data	112 Bytes (RY/RX), 256 Bytes (RWw/RWr)
Extension Cycles	1, 2, 4, 8
Version	2.0

DeviceNet	Slave	Master
Slaves max.		63
Cyclic Data max.	510 Bytes	7168, 255 Bytes/Slave
Acyclic Data		Get/Set_Attribute max.240 Bytes /Req.
I/O Connections		Poll, Change-of-State, Cyclic, Bit-Strobe
Functions		Predefined Master-Slave Connection Set
		UCMM supported

CANopen	Knoten	Master
Nodes max.		126
Cyclic Data max.	1024 Bytes	7168 Bytes
SDO Up- and Download		max. 200Bytes/Request
Emergency	Producer	Consumer/Producer
Functions	Node-/Life Guard., Heartbeat, PDO Mapping, NMT Magagement, SYNC, Emergency synchronized, remotely request and event driven (change of state)	
PDO Communication	max. 64 Rx/TxPDO	max. 512 Rx/TxPDO
CAN	11 Bit	11 Bit

CompoNet	Slave
Station Type	Remote Device Station
Cyclic Data max.	368 Bytes Input and Output
I/O Data	112 Bytes (RY/RX), 256 Bytes (RWw/RWr)
Extension Cycles	1, 2, 4, 8
Acyclic Data	Explicit Messaging, A_Event

PROFIBUS	Slave	Master
Slaves max.		125
Cyclic Data max.	488 Bytes	7168, 255 Bytes
DPV1 Class 1, 2	yes	yes
Configuration Data	244 Bytes	244 Bytes/Slave
Appl.specific Parameter	237 Bytes	237 Bytes/Slave

The protocols for cifX are provided as loadable firmware on a CD. The driver loads the firmware into the cifX during each system start-up. This is a simple way to use the card either as master or as slave. A license is required for master firmware. The license can be purchased with the cifX or at later time and is permanently saved in the card. For the cifX for Real-Time Ethernet, this means reduction to one type of PC card and therefore less diversity in terms of purchase management. Additionally, this approach reduces cost for warehouse, logistic, engineering, setup and maintenance.

# Technical Data/ Product Overview

Technical Data	Article	System Interface	Operating Voltage	Operating Temperature	Dimensions (LxHxW)
	CIFX 50-XX	PCI, 33 MHz DPM, IO-DMA	3,3 V / typ. 650 mA	-20 ... +55°C	120 x 86 x 18,5 mm
	CIFX 50E-XX	PCI Express, One-Lane Port	3,3 V / typ. 800 mA	0 ... +55°C	120 x 73,2 x 18,5 mm
	CIFX 80-XX	Compact PCI, 33 MHz DPM	3,3 V / typ. 650 mA	-20 ... +70°C	162,2 x 100 x 20 mm
	CIFX 90-XX\F	Mini PCI, 33 MHz DPM	3,3 V / typ. 650 mA	-20 ... +70°C	60 x 45 x 9,5 mm
	CIFX 90E-XX\F	Mini PCI Express, One-Lane Port	3,3 V / typ. 650 mA	0 ... +55°C	51 x 30 x 11 mm
	CIFX 104-XX*	PC/104, 33 MHz DPM	3,3 V / typ. 650 mA	-20 ... +70°C	97 x 91 x 24 mm
	CIFX 104C-XX*	PCI 104, 33 MHz DPM	3,3 V / typ. 650 mA	-20 ... +70°C	97 x 91 x 24 mm

All CIFX are UL 508 certified (E221530).

All CIFX PCI Cards supporting the IO - Transfer per DMA.

Overview Real-Time Ethernet	Article Description	Article Number	Article
	CIFX 50-RE	1250.100	PCI Communication Interface netX for Real-Time-Ethernet - 2x RJ45
	CIFX 50E-RE	1251.100	PCI Express Communication Interface netX for Real-Time-Ethernet - 2x RJ45
	CIFX 80-RE	1280.100	Compact PCI Communication Interface netX for Real-Time-Ethernet - 2x RJ45
	CIFX 90-RE\F	1290.100	Mini PCI Communication Interface netX for Real-Time-Ethernet - Cable and AIFX-RE with 2x RJ45
	CIFX 90E-RE\F	1291.100	Mini PCI Express Communication Interface netX for Real-Time-Ethernet - Cable and AIFX-RE with 2x RJ45
	CIFX 104-RE*	1278.100	PC/104 Communication Interface netX for Real-Time-Ethernet - 2x RJ45
	CIFX 104C-RE*	1270.100	PCI-104 Communication Interface netX for Real-Time-Ethernet - 2x RJ45
NXLIC-MASTER	8211.000	Master License for EtherNet/IP / EtherCAT / PROFINET / SERCOS III	

Overview Fieldbus	Article Description	Article Number	Article
	CIFX 50-DP( )	1250.400	PCI Communication Interface netX for PROFIBUS - SubD female 9-pin
	CIFX 50-CO( )	1250.500	PCI Communication Interface netX for CANopen - SubD male 9-pin
	CIFX 50-DN( )	1250.510	PCI Communication Interface netX for DeviceNet - COMBICON 5-pin
	CIFX 50-2ASM	1252.630	PCI Communication Interface netX for AS-Interface - 2x COMBICON 2-pin
	CIFX 50-CCS	1250.740	PCI Communication Interface netX for CC-Link - COMBICON 5-pin
	CIFX 50-CPS	1250.750	PCI Communication Interface netX for CompoNet - Open-Jack 4 pin
	CIFX 50E-DP( )	1251.410	PCI Express Communication Interface netX for PROFIBUS - SubD female 9-pin
	CIFX 50E-CO( )	1251.500	PCI Express Communication Interface netX for CANopen - SubD male 9-pin
	CIFX 50E-DN( )	1251.510	PCI Express Communication Interface netX for DeviceNet - COMBICON 5-pin
	CIFX 50E-2ASM	1252.630	PCI Express Communication Interface netX for AS-Interface Master - 2x COMBICON 2 pin
	CIFX 50E-CCS	1251.740	PCI Express Communication Interface netX for CC-Link COMBICON 5-pin
	CIFX 50E-CPS	1251.750	PCI Express Communication Interface netX for CompoNet Open-Jack 4 pin
	CIFX 50-2DP( )	1252.410	PCI Communication Interface netX for PROFIBUS - 2*SubD female 9-pin
	CIFX 80-DP( )	1280.410	Compact PCI Communication Interface netX for PROFIBUS - SubD female 9-pin
	CIFX 80-CO( )	1280.500	Compact PCI Communication Interface netX for CANopen - SubD male 9-pin
	CIFX 80-DN( )	1280.510	Compact PCI Communication Interface netX for DeviceNet - COMBICON 5-pin
	CIFX 90-DP\F( )	1290.410	Mini PCI Communication Interface netX for PROFIBUS - Cable and AIFX-DP with SubD female 9-pin
	CIFX 90-CO\F( )	1290.500	Mini PCI Communication Interface netX for CANopen - Cable and AIFX-CO with SubD male 9-pin
	CIFX 90-DN\F( )	1290.510	Mini PCI Communication Interface netX for DeviceNet - Cable and AIFX-DN with COMBICON 5-pin
	CIFX 90E-DP\F( )	1291.410	Mini PCI Express Communication Interface netX for PROFIBUS - Cable and AIFX-DP with SubD female 9-pin
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	CIFX 90E-DN\F( )	1291.510	Mini PCI Express Communication Interface netX for DeviceNet - Cable and AIFX-DN with COMBICON 5-pin
	CIFX 104-DP(*)	1278.410	PC/104 Communication Interface netX for PROFIBUS - SubD female 9-pin
	CIFX 104-CO(*)	1278.500	PC/104 Communication Interface netX for CANopen - SubD male 9-pin
	CIFX 104-DN(*)	1278.510	PC/104 Communication Interface netX for DeviceNet - COMBICON 5-pin
	CIFX 104C-DP(*)	1270.410	PCI-104 Communication Interface netX for PROFIBUS - SubD female 9-pin
	CIFX 104C-CO(*)	1270.500	PCI-104 Communication Interface netX for CANopen - SubD male 9-pin
CIFX 104C-DN(*)	1270.510	PCI-104 Communication Interface netX for DeviceNet - COMBICON 5-pin	
NXLIC-MASTER	8211.000	Master License	

Note: All technical data can be altered without notice.

( ) = Master or Slave decided by software. Master license needs to be ordered separately. \*= available in the variants: \F, -R, -R\F

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