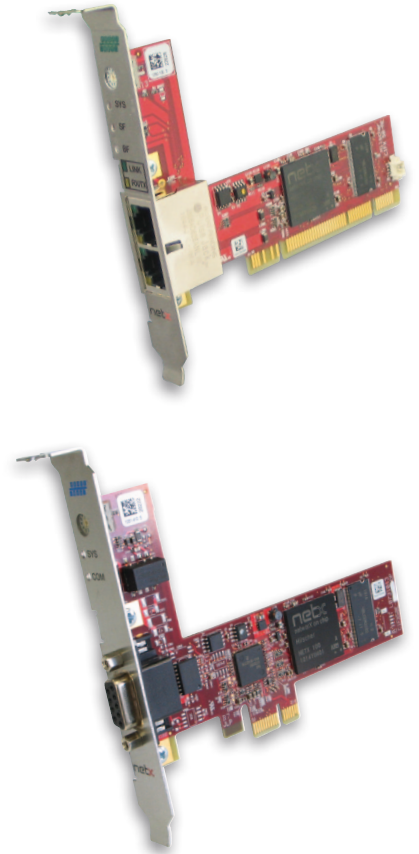


PC cards for Real-Time Ethernet and Fieldbus

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, 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.

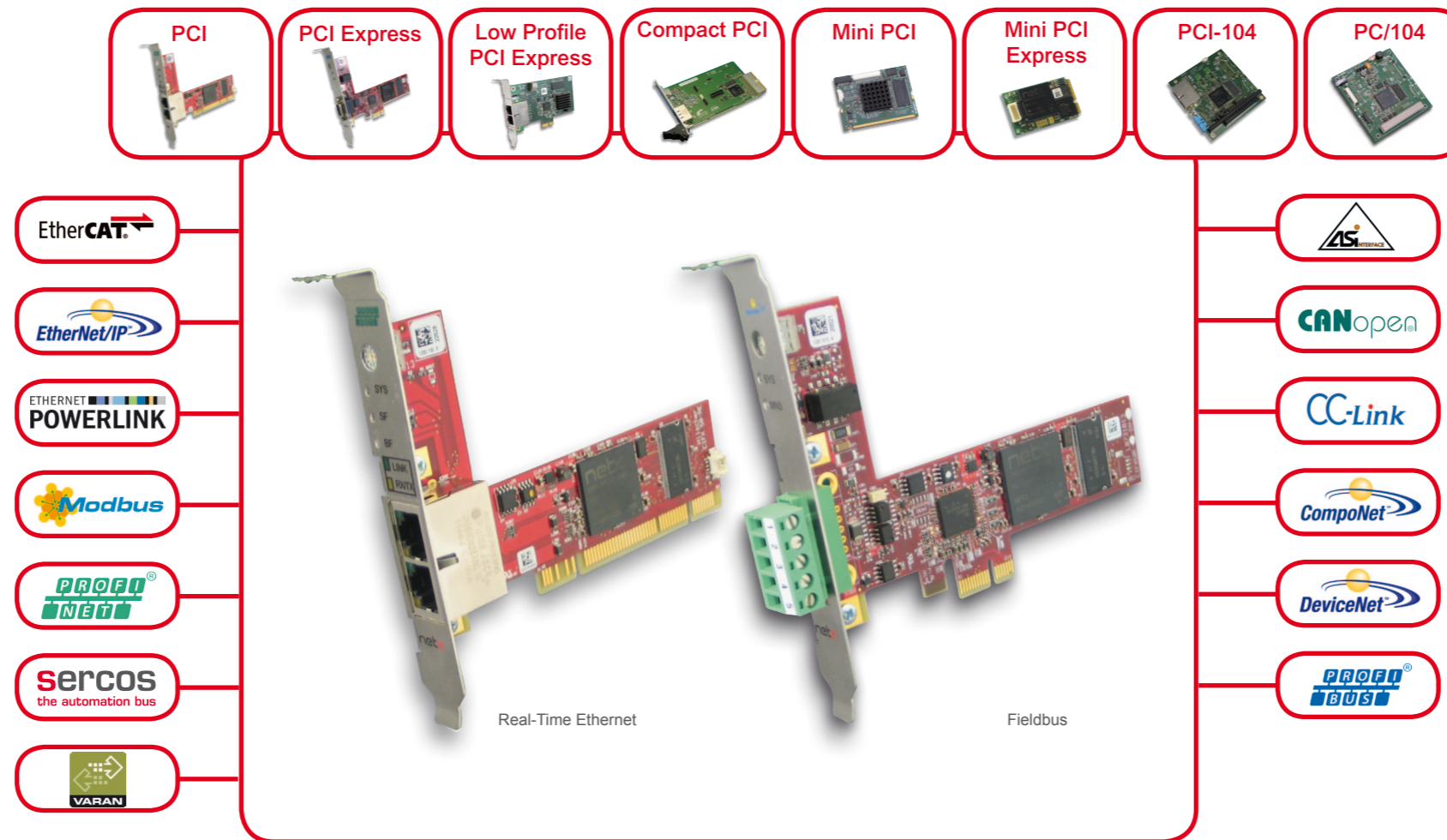
Due to the own network controller netX a 10-years delivery is guaranteed.

cifX - 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.



cifX for Fieldbus

Fieldbus technology with its various standards is an established technology and will coexist for many years besides the Real-Time systems. With collected experience in fieldbus technology over more than 15 years and close to three hundred thousand PC cards sold, with cifX Hilscher introduces the next generation of CIF 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.

Real-Time Ethernet Protocols

EtherCAT	Slave	Master
Slaves max.	--	200
Cyclic Data max.	11520 Bytes	11472 Bytes
Acyclic Data	SDO Master/Slave SDO Slave/Slave Up-/Download, max. 1500 Bytes	CoE (CANopen over EtherCAT) Get OD List Emergency Complex Slave 3 FMMU / 4 SYNC-Manager Distributed Clocks
Functions	SDO, COE, SSC Emergency Topology: Line	
Powerlink	Controlled Node/Slave	
Cyclic Data max.	2980 Bytes	
Acyclic Data	SDO Up-/Download SDO over ASND and UDP Poll Request/Response Time 1µs Version V2	
Functions		
PROFINET IO	Device/Slave	Controller/Master
IO Devices max.	--	128
Cyclic Data max.	2048 Bytes (IOCR)	11472 Bytes
Acyclic Data	Read/Write Record, max 1024 Bytes/Telegramm Alarmtreatment DCP minimum cycle time 250 µs (RTC3) Class 1&2 (unsynchronized) Class 3 (synchronized) Context Management by CLRPC Diagnostic, max. 200 Bytes/Telegram target-actual comparison configuration max. 244 modules / 1 submodule MRP Client supported	Read/Write Record, max. 4096 Bytes/Request Alarmtreatment DCP minimum cycle time 1 ms Context Management by CLRPC per Device one buffer for diagnostic data available
Functions	LLDP, SNMP V1 MIB 2, Physik. Device	
Topologydetection		

EtherNet/IP	Adapter/Slave	Scanner/Master
Cyclic Data max.	1008 Bytes	11472 Bytes
Unscheduled Data max.	1400 Bytes per Telegram max. 8 Connections one I/O Connection	504 Bytes per Telegram max. 64 Connections
Functions	Cyclic Connection UCMM supported DHCP, BOOTP DLR, ACD Get_Attribute_All/Single Set_Attribute_All/Single	Cyclic Connection UCMM class 3 supported DHCP, BOOTP Get_Attribute_Single/All Set_Attribute_Single/All
Server Services		
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.	--	511
Realtime Data	400 (incl. Connection Control) Service Channel Phase Run Up, Synchronization min. cycle 250 us max. 8 Subdevices SCP_FixCFG, SCP_VarCFG FSP_IO, FSP_Drive V1.1.2	11520 (incl. Connection Control) Service Channel Phase Run Up, Synchronization min. cycle 250 us Bus Scan
Acyclic Data		
Functions		
Version		1.1.1 / 1.1.2
VARAN	Client/Slave	
Cyclic Data max.	256 Byte	
Functions	PLL functionality to synchronize client application with VARAN network; integrated 2 Port-Splitter for daisy chain topology support	
Version	V1.1.1.0	

Fieldbus Protocols

AS-Interface	--	Master
Slaves max.		62
Cyclic Data max.		Digital 62 Byte (4Bit/Byte) Analog 31 Slaves x 4x16Bit 220 Bytes/Request Transactiontypes 1-5 Automatic Address assignment Profile for ext. Master: M4 3.0
Acyclic Data		
Functions		
Version		
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
Slave max.	--	63
Cyclic Data max	510 Bytes	7168, 255 Bytes/Slave
Acyclic Data	Get/Set_Attribute Max.240 Bytes /Req.	Get/Set_Attribute
I/O Connections	Poll Change-of-State Cyclic Bit-Strobe	Poll Change-of-State Cyclic Bit-Strobe
Functions	Predefined Master-Slave Connection Set	Predefined Master-Slave Connection Set UCMM supported

Note:

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 and can be purchased with the cifX or afterwards and will permanently be stored in the card. With the reduction to one PC card for all Real-Time Ethernet protocols, there is less diversity in terms of purchase management and thus reduces cost for warehouse, logistic, engineering, setup and maintenance.

CANopen	Slave	Master
Nodes max.	--	126
Cyclic Data max.	1024 Bytes	7168 Bytes
SDO Up- und Download		max. 200Bytes/Request
Emergency	Producer	Consumer/Producer
Functions	Node-/Life Guard., Heartbeat, PDO Mapping, NMT Management, 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	
Slave type	Word or Bit IN, Mix and OUT	
Cyclic Data max.	2-256 I/O points (Bits)	
Baudrate detection	yes	
Telegrams	OUT, TRG, Beacon, B_Event, A_Event, CN, IN	
Acyclic Data	Explicit Messaging, A_Event	
PROFIBUS	Slave	Master
Slaves max.	--	125
Cyclic Data max.	488 Bytes	7168, 244 Bytes/Slave
Acyclic Read/Write	240 Bytes	240 Bytes/Slave
DPV1 Class 1, 2	yes	yes
Configuration Data	244 Bytes	244 Bytes/Slave
Appl.specific Parameter	237 Bytes	237 Bytes/Slave

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	120,0 x 86,0 x 18,5 mm
	CIFX 50E-XX	PCI Express, One-Lane Port	3,3 V / typ. 800 mA	0 ... +55°C	120,0 x 73,2 x 18,5 mm
	CIFX 70E-XX	Low Profile PCI Express, One-Lane Port	3,3 V / typ. 800 mA	0 ... +55°C	119,0 x 69,0 x 18,5 mm
	CIFX 80-XX	Compact PCI, 33 MHz, DPM, IO-DMA	3,3 V / typ. 650 mA	-20 ... +70°C	162,2 x 100,0 x 20,0 mm
	CIFX 90-XXIF	Mini PCI, 33 MHz, DPM, IO-DMA	3,3 V / typ. 650 mA	-20 ... +70°C	60,0 x 45,0 x 9,5 mm
	CIFX 90E-XXIF	Mini PCI Express, One-Lane Port	3,3 V / typ. 650 mA	0 ... +55°C	51,0 x 30,2 x 11,0 mm
	CIFX 104-XX*	PC/104, 33 MHz, DPM	3,3 V / typ. 650 mA	-20 ... +70°C	97,0 x 91,0 x 24,0 mm
	CIFX 104C-XX*	PCI 104, 33 MHz, DPM, IO-DMA	3,3 V / typ. 650 mA	-20 ... +70°C	97,0 x 91,0 x 24,0 mm

All CIFX are UL 508 certified (E221530).

All CIFX PCI and PCI Express 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 70E-RE	1259.100	Low Profile 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-REIF	1290.100	Mini PCI Communication Interface netX for Real-Time Ethernet - Cable and AIFX-RE with 2x RJ45
	CIFX 90E-REIF	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()	1250.410	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-CC**	1250.740	PCI Communication Interface netX for CC-Link - COMBICON 5-pin
	CIFX 50-CP**	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	1253.630	PCI Express Communication Interface netX for AS-Interface Master - 2x COMBICON 2 pin
	CIFX 50E-CC**	1251.740	PCI Express Communication Interface netX for CC-Link COMBICON 5-pin
	CIFX 50E-CP**	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 70E-DP()	1259.410	Low Profile PCI Express Communication Interface netX for PROFIBUS - SubD Buchse 9-pin
	CIFX 70E-CO()	1259.500	Low Profile PCI Express Communication Interface netX for CANopen - SubD Stecker 9-pin
	CIFX 70E-DN()	1259.510	Low Profile PCI Express Communication Interface netX for DeviceNet - COMBICON 5-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()	1290.410	Mini PCI Communication Interface netX for PROFIBUS - Cable and AIFX-DP with SubD female 9-pin
	CIFX 90-CO()	1290.500	Mini PCI Communication Interface netX for CANopen - Cable and AIFX-CO with SubD male 9-pin
	CIFX 90-DN()	1290.510	Mini PCI Communication Interface netX for DeviceNet - Cable and AIFX-DN with COMBICON 5-pin
	CIFX 90E-DP()	1291.410	Mini PCI Express Communication Interface netX for PROFIBUS - Cable and AIFX-DP with SubD female
	CIFX 90E-CO()	1291.500	Mini PCI Express Communication Interface netX for CANopen - Cable and AIFX-CO with SubD male
	CIFX 90E-DN()	1291.510	Mini PCI Express Communication Interface netX for DeviceNet - Cable and AIFX-DN with COMBICON
	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: 'IF, -R, -R'IF, ** = Slave only

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