

## Flexible Communication Module for automation

### Highlights

- All major network protocols as Master and Slave
- Dual-Port-Memory with 8/16 bit data bus to the host
- Single hardware for all Real-Time-Ethernet protocols
- Complete communication device including network specific connection
- PROFINET IRT device with fiber-optics pursuant AIDA
- Ready to use, due to preloaded firmware
- One design for all networks due to consistent interfaces and tools



Fieldbus



Real-Time-Ethernet



Real-Time-Ethernet with fiber-optics

### Everything you need in one compact module

The comX communication module is designed for integration in automation devices e.g. robot controllers, PLCs or drives to add a network interface. The high-end network controller netX carries out all communication tasks independent from the processor of the target device. With an 8/16-Bit Data bus the application has direct access to the process data via a Dual-Port-Memory.

comX supports all leading Real-Time-Ethernet protocols as Master or Slave and covers all network specific requirements in a single module. For support of a line topology the module has been equipped with two Ethernet ports. A change of the protocol can be done quickly and reliably by just loading the corresponding firmware. The Fieldbusses can be delivered as pure Slave module with address switch or as universal module for Master and Slave. Master functionality will easily be enabled with a software license.

All comx modules are available as variant CA with angled network connector or as variant CN with a connector plug to the baseboard.

# comX – Communication Module for

## comX 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.

With comX, Hilscher offers an OEM solution, which supports all Real-Time-Ethernet Systems in one design covering all network specific requirements such as integrated Switch and Hub in a flexible module.

Essential unit is the network controller netX and provides maximum performance, functionality and flexibility at a fair price.

comX 100CA-RE



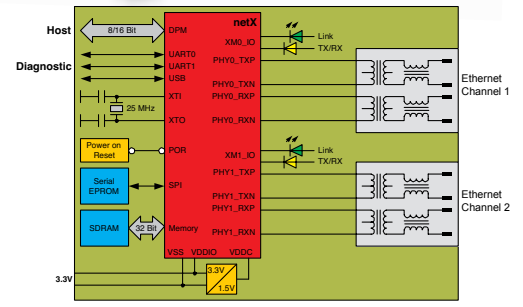
comX 100CN-RE



comX 100CA-RE



## Real-Time-Ethernet



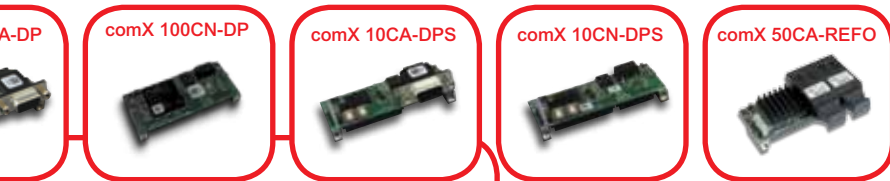
Real-Time-Ethernet Protocol

Note: The data mentioned further down applies for comX 100. For comX 50 and comX 10 possibly other values might apply. All technical data is preliminary and can be changed without notice.

EtherCAT	Slave	Master
Slaves max.		200
Cyclic Data max.	512 Bytes	11520 Bytes
Acyclic Data	SDO Master/Slave SDO Slave/Slave COE	CoE (CANopen over EtherCAT) Up-/Download, max. 1500 Bytes Get OD List
Functions	Emergency Complex Slave 3 FMMUs and 4 SYNC-Manager Distributed Clocks	Emergency Topology: Line
Powerlink	Controlled Node/Slave	
Cyclic Data	max. 2980 Bytes	
Acyclic Data	SDO Up-/Download	
Functions	SDO over ASND and UDP Poll Request/Response 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	Alarm/treatment DCP	Read/Write Record, max. 4096 Bytes/Request
Functions	Class 1&2 (not synchronized) Class 3 (synchronized) Context Management über CLRPC Diagnostic, max 200 Bytes/Telegramm target-actual comparison configuration	minimum cycle time 1 ms Alarm/treatment DCP Context Management through CLRPC per Device one buffer for diagnostic data available
Topology detection	LLDP, SNMP V1 MIB 2, Physical Device	

EtherNet/IP	Adapter/Slave	Scanner/Master
Cyclic Data max.	1008 Bytes	11472 Bytes
Unscheduled Daten max.	1400 Bytes per Telegram max. 8 Connections	504 Bytes per Telegram max. 64 Connections
Functions	one E/A Connection Cyclic Connection UCMM supported DHCP, BOOTP	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	
Functions Code	1, 2, 3, 4, 5, 6, 15, 16, 23	
Register (16-Bit)	max. 121, 123 bzw 125 Register per Telegram	
Coil (1-Bit)	max. 1968 bzw. 2000 Coils per Telegram	
Message Mode	Server, In/Out-Data Image not used	
I/O-Mode Server	max. 11520 Byte I/O Data	
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 SCP_FixCFG, SCP_VarCFG FSP_IO, FSP_Drive	11520 (incl. Connection Control) Service Channel Phase Run Up, Synchronization min. Cyclic 250 us Bus Scan
Acyclic Data		
Functions		
Version	V1.1.2	1.1.1 / 1.1.2

# or Real-Time-Ethernet and Fieldbus



Fieldbus



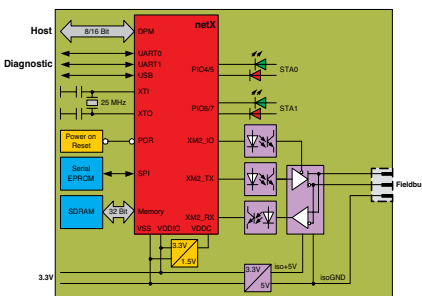
CANopen

CC-Link

CompoNet

DeviceNet

PROFIBUS



## comX for Fieldbus

Fieldbus with its various standards is an established technology and will coexist for many years beside the growing Real-Time-Ethernet systems.

Based on 15 years of experience in fieldbus technology and more than one-hundred-thirty thousands sold communication modules Hilscher introduces the next generation of COM modules.

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

Due to the Hilscher own network controller as essential unit a ten-year commitment of availability is guaranteed.

Fieldbus Protocol

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

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

CC-Link	Slave
Station type	Remote Device Station / Remote IO Station
Cyclic Data max.	368 Bytes Input and Output
I/O Data	112 Bytes (RY/RX), 256 Bytes (RWw/RWr)
Extension Cycle	1, 2, 4, 8
Version	2.0

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

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

**Note:**

The comX modules can be ordered with or without preloaded firmware which is why the firmware must be specified during the ordering process.

For using comX as Master, a corresponding Master license is needed in the device. The license can be ordered together with comX or subsequent and will be stored in the module.

# Technical Data/ Product Overview

## Overview Fieldbus

Description	Number	Article
<b>COMX 10</b>		<b>Communication Module netX 10</b>
COMX 10CA-CCS/CCS	1561.740	CA with CC-Link Slave Firmware
COMX 10CN-CCS/CCS	1562.740	CN with CC-Link Slave Firmware
COMX 10CA-COS/COS	1561.540	CA with CANopen Slave Firmware
COMX 10CN-COS/COS	1562.540	CN with CANopen Slave Firmware
COMX 10CA-CPS/CPS	1561.760	CA with CompoNet Slave Firmware
COMX 10CN-CPS/CPS	1562.760	CN with CompoNet Slave Firmware
COMX 10CA-DNS/DNS	1561.520	CA with DeviceNet Slave Firmware
COMX 10CN-DNS/DNS	1562.520	CN with DeviceNet Slave Firmware
COMX 10CA-DPS/DPS	1561.420	CA with PROFIBUS-DP Slave Firm.
COMX 10CN-DPS/DPS	1562.420	CN with PROFIBUS-DP Slave Firm.
<b>COMX 100</b>		<b>Communication Module netX 100</b>
COMX 100CA-CO/COS	1531.500	CA with CANopen Slave Firmware
COMX 100CA-CO/COM	1531.500	CA with CANopen Master Firmware
COMX 100CN-CO/COS	1532.500	CN with CANopen Slave Firmware
COMX 100CN-CO/COM	1532.500	CN with CANopen Master Firmware
COMX 100CA-DN/DNS	1531.510	CA with DeviceNet Slave Firmware
COMX 100CA-DN/DNM	1531.510	CA with DeviceNet Master Firmware
COMX 100CN-DN/DNS	1532.510	CN with DeviceNet Slave Firmware
COMX 100CN-DN/DNM	1532.510	CN with DeviceNet Master Firmware
COMX 100CA-DP/DPS	1531.410	CA with PROFIBUS-DP Slave Firm.
COMX 100CA-DP/DPM	1531.410	CA with PROFIBUS-DP Master Firm.
COMX 100CN-DP/DPS	1532.410	CN with PROFIBUS-DP Slave Firm.
COMX 100CN-DP/DPM	1532.410	CN with PROFIBUS-DP Master Firm.

## Overview Real-Time-Ethernet

Description	Number	Article
<b>COMX 50</b>		<b>Communication Module netX 50</b>
COMX 50CA-REFO/PNS	1551.110	CA with PROFINET IO RT / Fiber Optic
COMX 50CN-REFO/PNS	1552.110	CN with PROFINET IO RT / Fiber Optic
<b>COMX 100</b>		<b>Communication Module netX 100</b>
COMX 100CA-RE/ECS	1531.100	CA with EtherCAT Slave Firmware
COMX 100CA-RE/ECM	1531.100	CA with EtherCAT Master Firmware
COMX 100CN-RE/ECS	1532.100	CN with EtherCAT Slave Firmware
COMX 100CN-RE/ECM	1532.100	CN with EtherCAT Master Firmware
COMX 100CA-RE/EIS	1531.100	CA with EtherNet/IP Adapter/Slave Firm.
COMX 100CA-RE/EIM	1531.100	CA with EtherNet/IP Scanner/Master Firm.
COMX 100CN-RE/EIS	1532.100	CN with EtherNet/IP Adapter/Slave Firm.
COMX 100CN-RE/EIM	1532.100	CN with EtherNet/IP Scanner/Master Firm.
COMX 100CA-RE/OMB	1531.100	CA with Open Modbus/TCP Firmware
COMX 100CN-RE/OMB	1532.100	CN with Open Modbus/TCP Firmware
COMX 100CA-RE/PLS	1531.100	CA with POWERLINK Slave Firmware
COMX 100CN-RE/PLS	1532.100	CN with POWERLINK Slave Firmware
COMX 100CA-RE/PNS	1531.100	CA with PROFINET IO RT Device
COMX 100CA-RE/PNM	1531.100	CA with PROFINET IO RT Controller
COMX 100CN-RE/PNS	1532.100	CN with PROFINET IO RT Device
COMX 100CN-RE/PNM	1532.100	CN with PROFINET IO RT Controller
COMX 100CA-RE/S3S	1531.100	CA with SERCOS III Slave Firmware
COMX 100CA-RE/S3M	1531.100	CA with SERCOS III Master Firmware
COMX 100CN-RE/S3S	1532.100	CN with SERCOS III Slave Firmware
COMX 100CN-RE/S3M	1532.100	CN with SERCOS III Master Firmware

**Note:** For orders, please specify the loaded firmware.  
Example: COMX 100CA-CO/COS  
Example: COMX 100CA-RE/ECM

## Technical Data

Parameter	Value
Diagnostic Port	USB/JUART
Interface	8/16-Bit Dual-Port-Memory
Operating Voltage	3,3 V / max. 750 mA
Operating Temperature	-20°...+65°C
Dimensions (L x W x H)	70 x 30 x 21,5 mm

**Note:** All technical data are preliminary and can be altered without notice.

### Headquarters

**Germany**  
Hilscher Gesellschaft für Systemautomation mbH  
Rheinstrasse 15  
65795 Hattersheim  
Phone: +49 (0) 6190 9907-0  
Fax: +49 (0) 6190 9907-50  
E-Mail: info@hilscher.com  
Web: www.hilscher.com

### Subsidiaries

**China**  
Hilscher Systemautomation (Shanghai) Co. Ltd  
200010 Shanghai  
Phone: +86 (0) 21-6355-5161  
E-Mail: info@hilscher.cn

**France**  
Hilscher France S.a.r.l.  
69500 Bron  
Phone: +33 (0) 4 72 37 98 40  
E-Mail: info@hilscher.fr

**India**  
Hilscher India Pvt. Ltd.  
New Delhi - 110 025  
Phone: +91 11 40515640  
E-Mail: info@hilscher.in

**Italy**  
Hilscher Italia srl  
20090 Vimodrone (MI)  
Phone: +39 02 25007068  
E-Mail: info@hilscher.it

**Japan**  
Hilscher Japan KK  
Tokyo, 160-0022  
Phone: +81 (0) 3-5362-0521  
E-Mail: info@hilscher.jp

**Korea**  
Hilscher Korea Inc.  
Suwon, 443-734  
Phone: +82 (0) 31-695-5515  
E-Mail: info@hilscher.kr

**Switzerland**  
Hilscher Swiss GmbH  
4500 Solothurn  
Phone: +41 (0) 32 623 6633  
E-Mail: info@hilscher.ch

**USA**  
Hilscher North America, Inc.  
Lisle, IL 60532  
Phone: +1 630-505-5301  
E-Mail: info@hilscher.us

### Distributors (more information on www.hilscher.com)

**Australia**  
Fieldbus Specialists  
**Austria**  
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