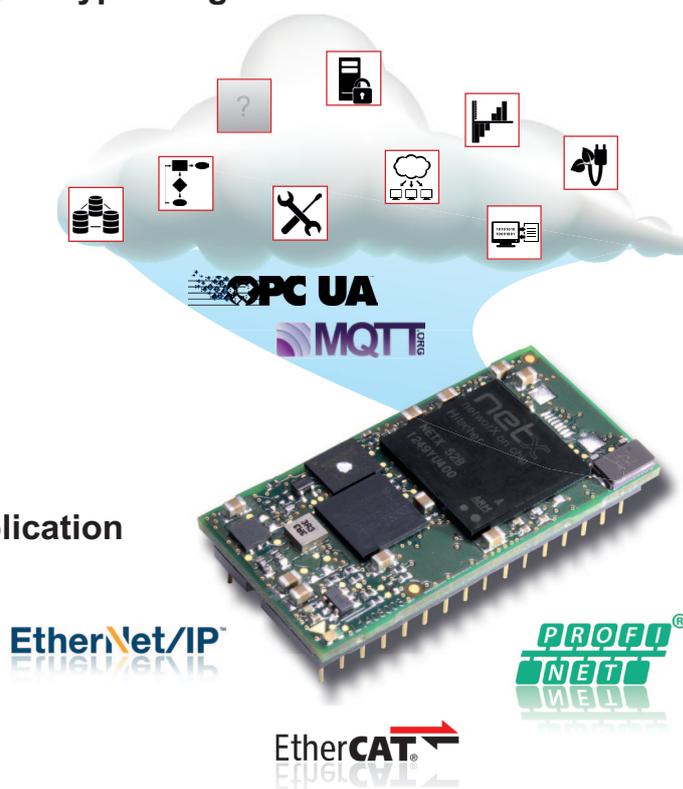


netIC IOT

Intelligent DIL-32 Communication IC with generic object interface

- Intelligent multiprotocol module for field devices
- IoT communication via OPC UA and MQTT bypassing the PLC
- Central „build process“ with intelligent engineering tool
- Protocol independent object interface to the application
- Customized device description file & source code for integration into the application



Object-oriented and IoT-Ready

Compact field devices will increasingly be equipped with more intelligence and functionality. Especially for I4.0 and IoT a continuous, object-oriented data model from field device to management level shall be established. Besides transmission via Real-Time Ethernet the objects shall be transferred directly to the cloud via IoT communication. To meet these objectives Hilscher has enhanced its DIL-32 Communication IC netIC with central IoT functionality.

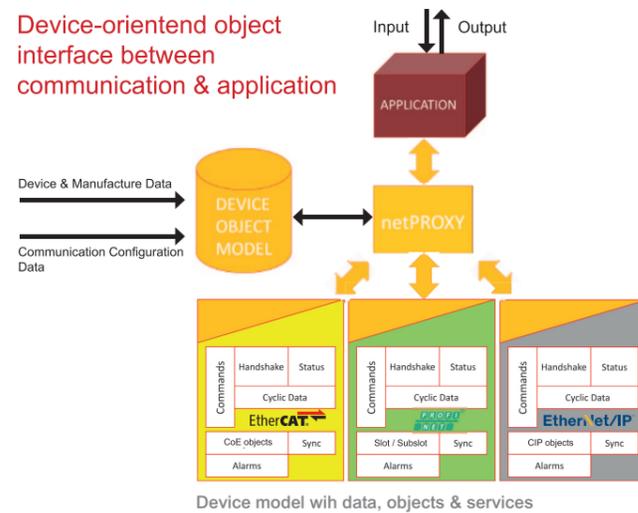
The new IoT-ready netIC is based on the multiprotocol chip netX 52 and offers device manufacturers maximum flexibility with an easy handling. With netIC IOT the user can transmit data via OPC UA or MQTT on the same physical cable parallel to the Real-Time Ethernet communication - reactionless and bypassing the PLC. All process- and service-data of the field device will be arranged in a generic, protocol independent object model.

The OEM will be supported by an intelligent engineering tool, which guides him through the complete „build process“ of his device and he even can adapt the pinning of netIC IOT to his needs. In addition he can use netIC standard functionality like a SSIO interface for direct I/Os or a SPI interface to the host CPU.

DIL-32 Communication IC with integrated OPC UA and MQTT functionality

Protocol independent object interface netPROXY

Device-oriented object interface between communication & application



Each network system offers specific services, which need to be implemented into the application by the user. This requires a deep knowledge of the functionality of each system and causes additional effort in the application software for each new network. This is where netPROXY technology starts.

The basic idea of netPROXY is to establish a device-oriented object- and service-interface between application and communication. This abstraction layer hides the complexity as well as the different protocol APIs and allows cyclic and acyclic data exchange with just a few simple services.

The device manufacturer only needs to implement this generic object interface in his application and netPROXY

transcribes the objects automatically in corresponding network services. Thus the OEM can develop his application completely separated from any network specific requirement and finally receives a real multiprotocol device.

The OEM will be supported by an intelligent engineering tool, which guides him through the complete „build process“ of his field device. In this process the OEM creates the object model for his device and the data will almost automatically be mapped to the chosen network system. In addition to settings for OPC UA, MQTT and the user management the OEM can even adapt the pinning of the DIL-32 IC to his needs.

As result the OEM receives a downloadable image for his device, a customized device description file (EDS) as well as source code for integration into his application (.h).

One design for all protocols

netIC IOT is a true multiprotocol module and supports all Real-Time Ethernet slave protocols on just one hardware. With an engineering tool the OEM generates the protocol independent object model for his device, which he only needs to implement once in his application software. Changing the network protocol will purely be done via „build process“ in the tool. Thus there are no network specific adjustments needed for the application and the OEM can realize a true multiprotocol device with exactly one hardware and software design.

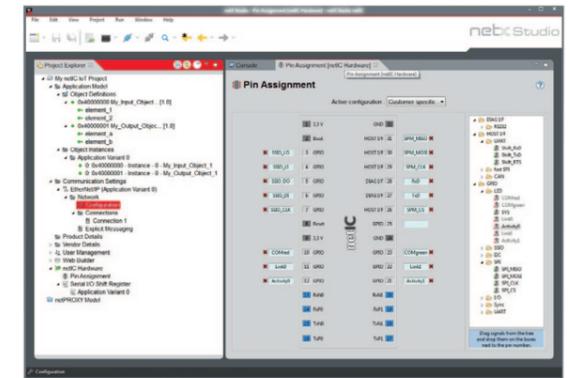


Adapt netIC IOT to your product - not the other way around

netIC IOT has been designed in that way that OEMs can adapt the DIL-32 pinning to their needs. Besides several predefined pins for power supply and communication all other pins are almost free configurable and the OEM can choose in the engineering tool between UART, I2C, SPI, GPIO, LED, CAN or SSIO.

Ready-made templates allow a quick and easy start. For current netIC customers who can't change their hardware design, but want to use new IoT functionality, a compatible pinning will be provided. All others can use a pin layout with a SPI host interface.

In addition netIC IOT offers the possibility to preprocess certain data via scripting language.



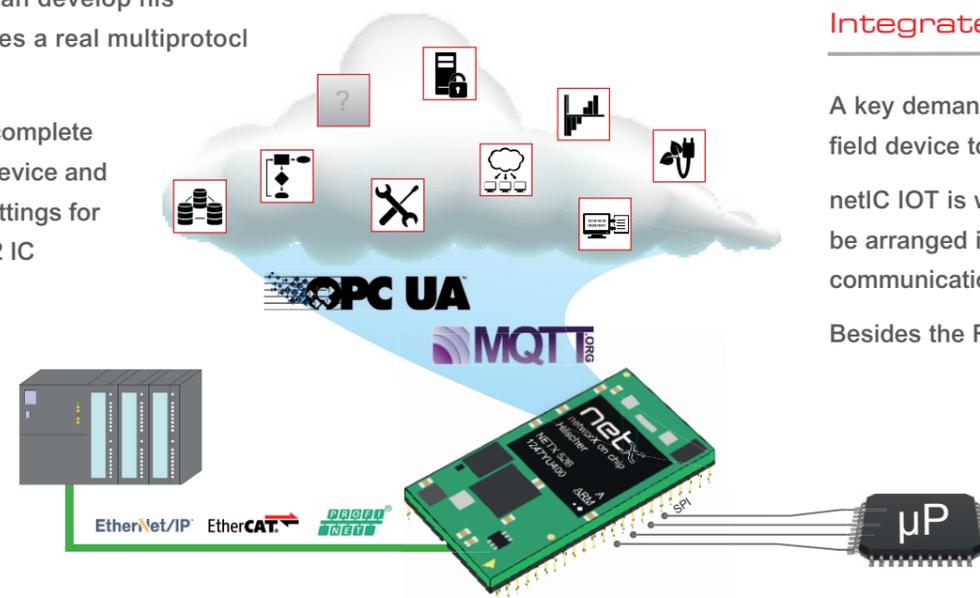
Flexible DIL-32 pinning via engineering tool

Integrated OPC UA and MQTT functionality

A key demand of I4.0 and IoT is the transmission of information from the field device to the cloud via IoT communication.

netIC IOT is well positioned and the process- and service-data will already be arranged in objects and thus transformed to information in the communication module.

Besides the Real-Time Ethernet stack the IoT-ready netIC additionally contains an integrated OPC UA server and MQTT client. The OPC UA or MQTT connection will be established on a parallel TCP/IP channel next to the real-time communication on the same cable - reactionless and bypassing the PLC.



Cloud connectivity, but still secure

Connecting field devices to a cloud increases the importance of security mechanisms in factory automation. Besides standard security of the IT-infrastructure, system designers have to consider security concepts for field devices and controls.

netIC IOT is a step ahead. The device manufacturer can connect a TPM chip (Trusted Platform Module) via SPI and thus enhance netIC in the future with additional security mechanisms like „secure boot“.

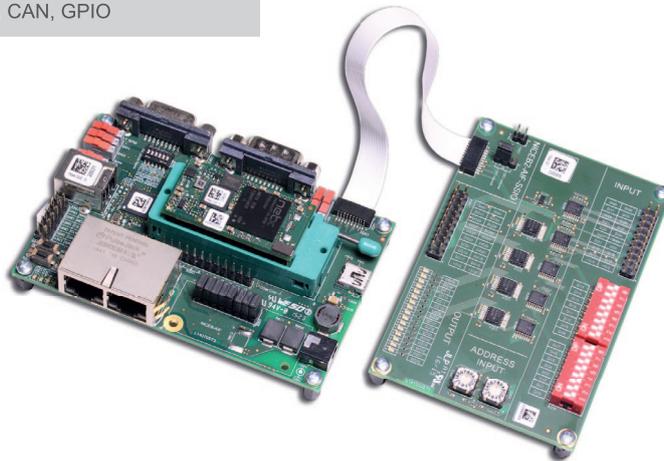
Technical Data / Product Overview

Technical Data	Parameter	Value
	Processor	netX 52
	Memory	8 MB SDRAM / 4 MB Quad SPI Flash
	Communication interface	2 x Ethernet 100 BASE-TX
	SSIO interface	Inputs max. 256 x 8 Bit shift register Outputs max. 256 x 8 Bit shift register
	System interface	SPI with 50MHz or UART
	Display	System-LED (on netIC) COM LED (on the base board)
	Diagnostic interface	UART (RXD, TXD) or Ethernet USB (via contact area)
	Synchronization events	SYNC0 / SYNC1
	Optional interfaces	UART, SPI, I2C, CAN, GPIO

Parameter	Value
Operating temperature	- 20 ... + 70 °C
Power supply	+3.3 V / typ 450 mA
Dimensions (L x W x H)	42 x 21 x 10.2 mm (incl. pins)
Weight	ca. 8 g
CE Sign	yes
RoHS Sign	yes
Mounting	via DIL-32 socket
Emission	according EN 61000-6-4:2007 + A1:2011
Noise immunity	according EN 61000-6-2:2005 and EN 61131-2:2007

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

Evaluation board for netIC 52 with SSIO extension



Overview	Article Description	Article Number	Article
	NIC 52-RE/IOT	1544.100	netIC 52 with netPROXY object interface and OPC UA / MQTT functionality
	NICEB2	1544.000	Evaluation board for netIC 52
	NICEB2-AIF-SSIO	1540.001	SSIO extension for NICEB2

Article	EtherCAT IMQTT	EtherNet/IP IMQTT	POWERLINK IMQTT	Modbus IMQTT	PROFINET IMQTT	Sercos IMQTT	ESSENTIAL IMQTT	UA IMQTT	SPI
netIC IOT NIC 52	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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