
isDNet USB

MANUAL



TH**RSIS**
TECHNOLOGIES

CERTIFICATE OF CONFORMITY

according to EC Directive 2014/30/EU (electromagnetic compatibility) from February 26, 2014.

We hereby declare, that the device indicated below in its design and construction, is in conformity with the essential safety and health requirements of the EC Directive 2014/30/EU.



CHANGES OR MODIFICATIONS NOT APPROVED BY THORSIS TECHNOLOGIES VOID THE VALIDITY OF THE DECLARATION.

Device type	Order number
isDNet USB	12300-0101

STANDARDS USED: EN 61326-1:2013

Manufacturer

Thorsis Technologies GmbH
Oststr. 18
39114 Magdeburg
Germany

Magdeburg, 2023-01-31

Dipl.-Inf. Michael Huschke,
General Manager

UK DECLARATION OF CONFORMITY

Thorsis Technologies GmbH declares as manufacturer under sole responsibility, that the products down in the list complies with the requirements of following UK legislation:

- S.I. 2019/1246 The Product Safety, Metrology and Mutual Recognition Agreement (Amendment)(EU Exit) regulations 2019
- S.I. 2020/852 The Product Safety and Metrology (Amendment)(EU Exit) regulations 2020
- S.I. 2016/1091 The Electromagnetic Compatibility Regulations 2016
- S.I. 2012/3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

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STANDARDS USED: EN 61326-1:2013
CERTIFICATION: NONE

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**UK
CA**

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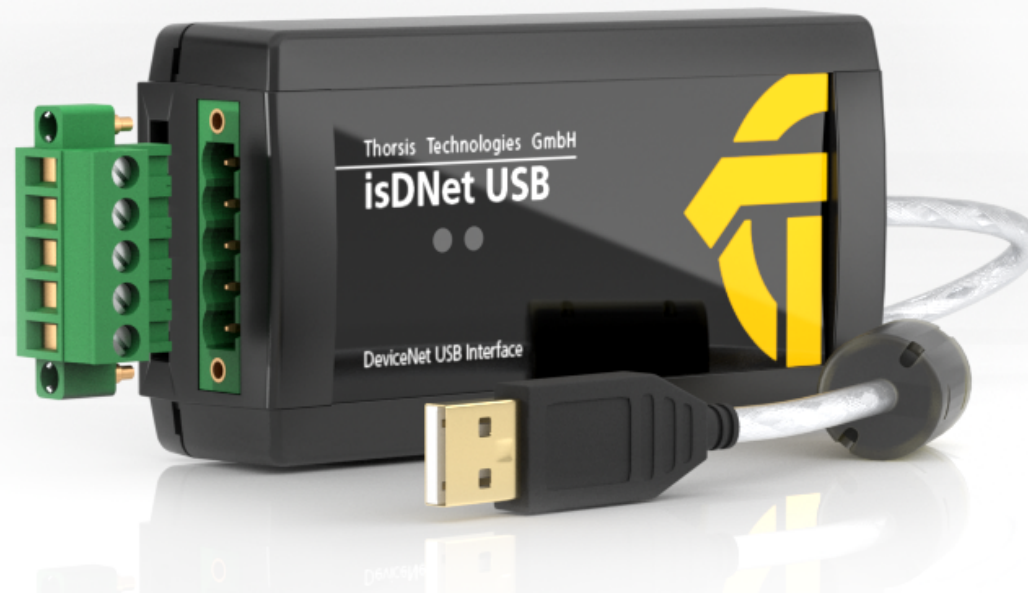
1. isDNet USB

The Interface isDNet USB provides a communication link between a desktop computer or PC notebook and a Device Network. The PC can be connected with the Device Network using the USB plug & play features. Realtime data of the field devices are available for operational areas, e.g. mobile data acquisition and parameterization.

The interface is not dependent on external power supplies. The processor and its periphery are powered by the USB bus. The transceiver is galvanic decoupled, its supply results from the DeviceNet Bus.

The interface supports the DeviceNet Standard Version 2.0.

Its connector cable comes with a 5-pin connector. The DeviceNet Stack works alternative or in parallel as Master (and IO scanner) or Slave. The scanner allows a dynamic change of the slave list, which means while the DeviceNet is working slave devices can be added to or eliminated from the scan list. The cyclic time of the the scan can be set as required by the system. The „Explicit Messaging“ functionality is performed employing asynchronous command and event queues. Thus any data lengths can be transmitted.



1.1 Technical details

Interface	isDNet USB	
Connector	DeviceNet (COMBICON 5-pin)	USB 2.0
Controller	Asic SJA1000	CY7C68014A
Transmission rate	125 kbit/s, 250 kbit/s, 500 kbit/s	Full Speed: 12 Mbit/s, High Speed: 480 Mbit/s
Driver software	Windows 7, 8, 10 and 11	
Available software	DNet CommDTM (FDT) isPlover	

1.2 Delivery content

DeviceNet-USB-Interface „isDNet USB“, Driver, configuration and test software as well as documentation in German and English on a memory stick.

2. Installation and commissioning

2.1 Installation of the driver software

The driver software must be installed before connecting the device.
Otherwise, the operating system can not find the interface to the associated driver.

The driver software package isDNet Multidriver contains a Dynamic Link Library (DLL) which allows the access to the firmware under the operating systems Windows 7, 8, 10 and 11. The actual operating system is detected automatically by the driver DLL.

The configuration of the interface can be done with the configuration software isDNet Driver Configurator which is installed into the Thorsis directory of the Start Menu.

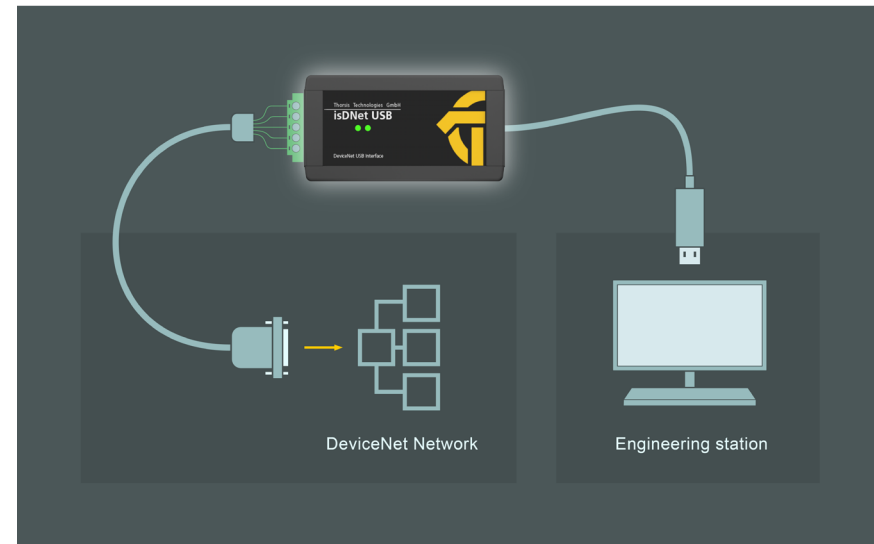
Installation process:

- Login as administrator.
- Connect the memory stick.
- The setup starts with an autoroutine; proceed according to the instructions displayed on the screen.
Should Autorun be disabled on your machine, run the setup.exe on the Memory-Stick.
- The installation is done in the standard program directory of the target machine under
C:\Program Files\Thorsis Technologies\isDNet Driver

2.2 Installation of the hardware

The Interface can be connected to the DeviceNet network with its COMBICON connector directly.

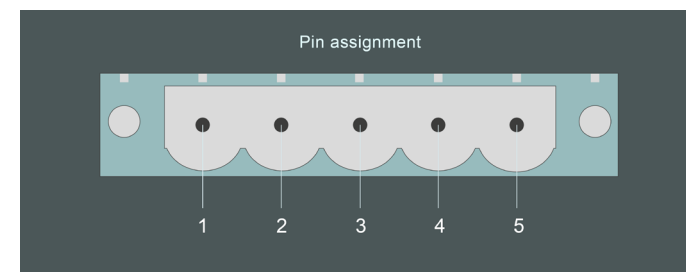
Use a USB cable to connect the interface to a PC / notebook.



2.2.1 Pin assignment

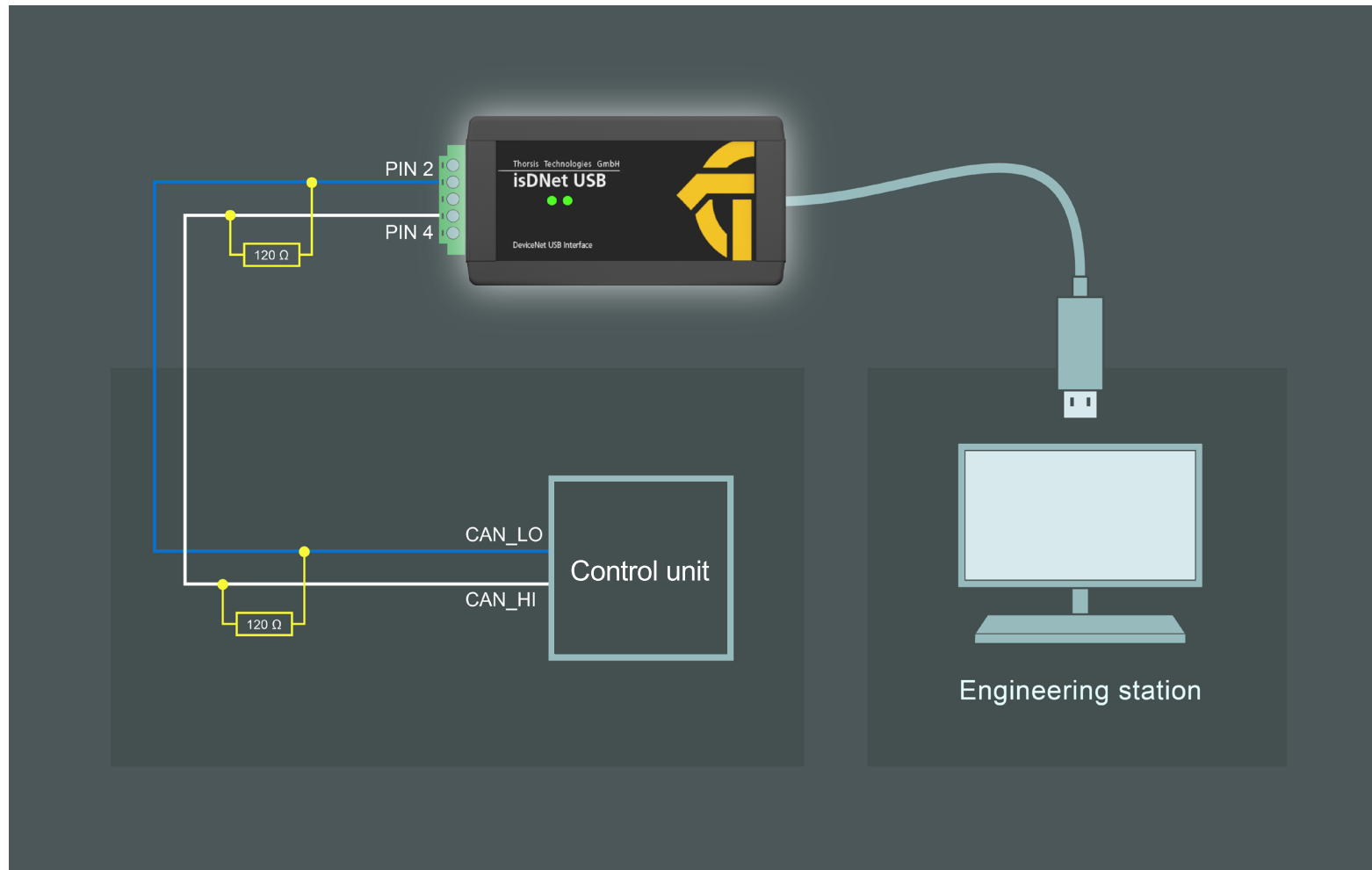
The contacts of the 5-pin COMBICON-connector are assigned as follows:

- Pin 1: V-(OV), black
- PIN 2: CAN_LOW, blue
- Pin 3: drain
- Pin 4: CAN_HIGH, white
- Pin 5: V+(24V), red



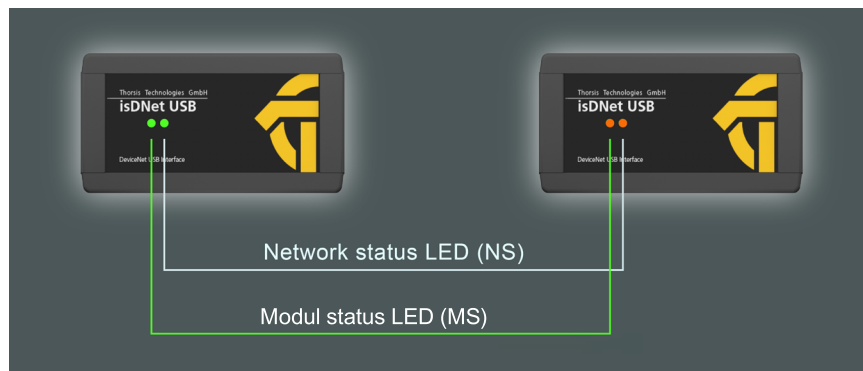
2.2.2 Wiring

The contacts of the 5-pin COMBICON connector are wired as shown in the following image.



2.2.3 LED display

Two LEDs (see figure) enable reading of operating states directly on the device.



At beginning of the initialisation both LEDs are running through all their possible states of lightning:
(MS=green, MS=red, NS=green, MS= red).
This allows to check the LEDs functionality.

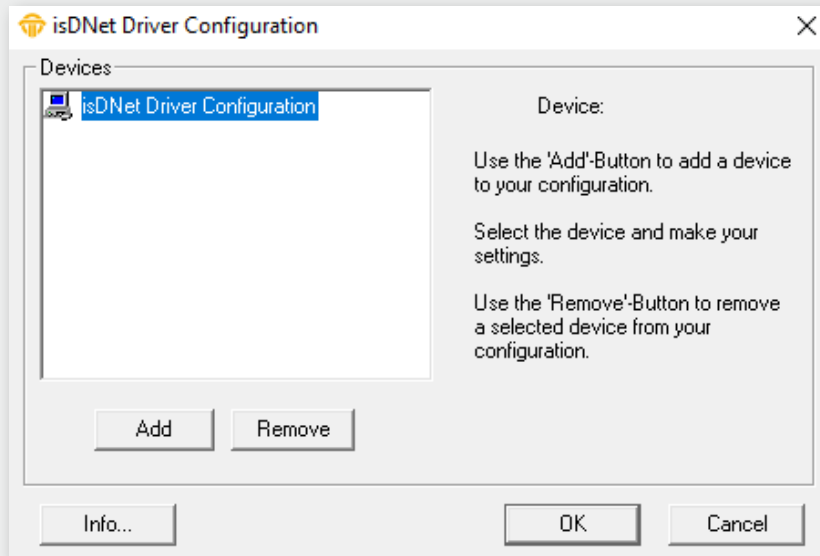
The Module Status LED (MS) displays the status of the device:

LED	meaning
off	device is not in use
green	normal operating status
red/green flashing	self test is being completed
red	error, device can be out of order

The network status (NS) LED gives information about the status of the communication:

LED	meaning
off	device is offline
green flashing	online, no connections are active
green	online, there is at least one connection
red flashing	at least one connection is at timed-out status
red	MAC-ID-conflict or connection to the bus is being disturbed

2.3 Configuration and Commissioning

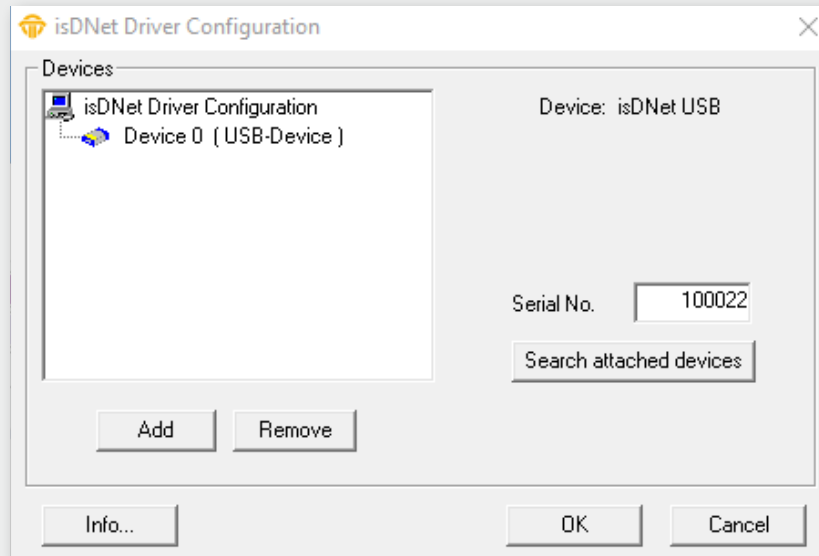


The isDNet Driver Configurator is available to simplify the configuration of the DeviceNet interface isDNet USB. The program is installed in the start menu.

Using this program, the DeviceNet interface and its serial number can easily be added to an existing configuration. The configuration program can also detect the serial numbers of connected interfaces.

Each device is assigned a specific number that can be used to address it. Due to the possibility of inserting empty devices, devices can be assigned to any device number that does not have to be numbered consecutively.

2.3.1 Add a device

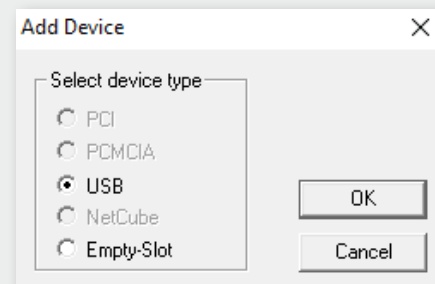


Please press the button “Add” and select the device type. Then enter all necessary settings.

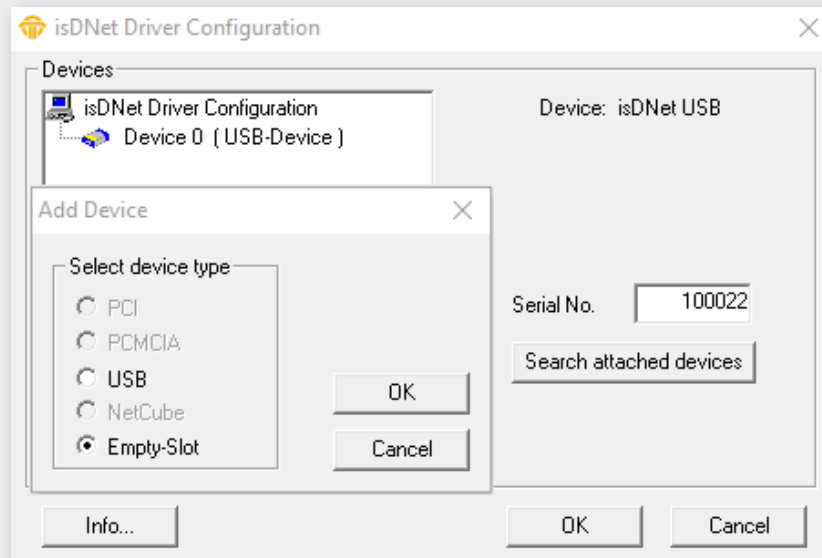
The isDNet USB device has a serial number for a unique identification. The number is printed on a label located at the bottom of the Interface and is also stored in the device.

The configuration software offers the possibility to search automatically for all attached devices and to detect their serial numbers.

If you work under Windows 7, 8, 10 and 11, just finish your settings with OK. All settings are saved.



2.3.2 Add an Empty Slot



The empty device does not contain any resources. It serves as a substitute for device numbers not yet assigned. Using this devices enables a free enumeration of devices by inserting empty devices between existing ones.

For example, if you want to assign the number 3 to a device and there is no device with the number 2, simply add an empty slot behind the device 1.

2.3.3 Removal of a device

Mark the device you wish to remove and press the button Remove.
You can then remove the device from the USB port.

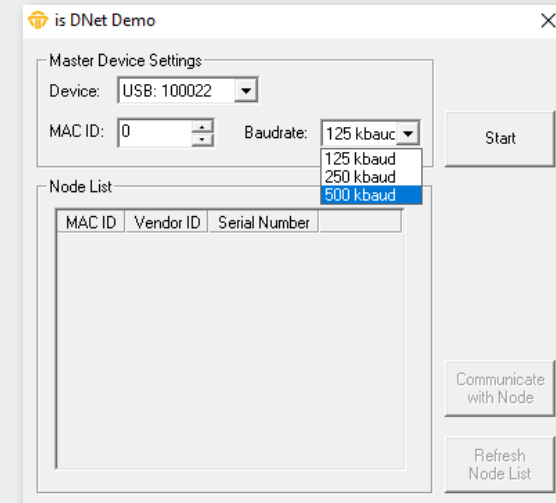
2.4 Test Software: isDNet Demo

The correct operation of the isDNet interface can be checked with the isDNet Demo test application that is included in the driver installation package.

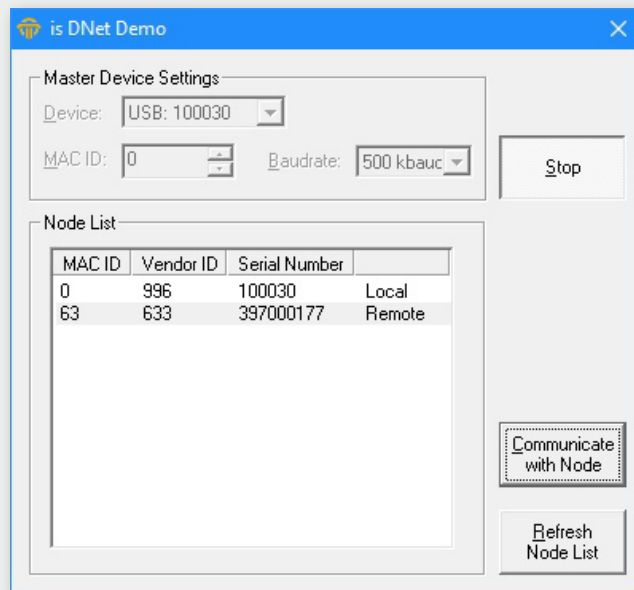
The test tool is installed in the Thorsis folder of the start menu.

The following functions are provided by the application:

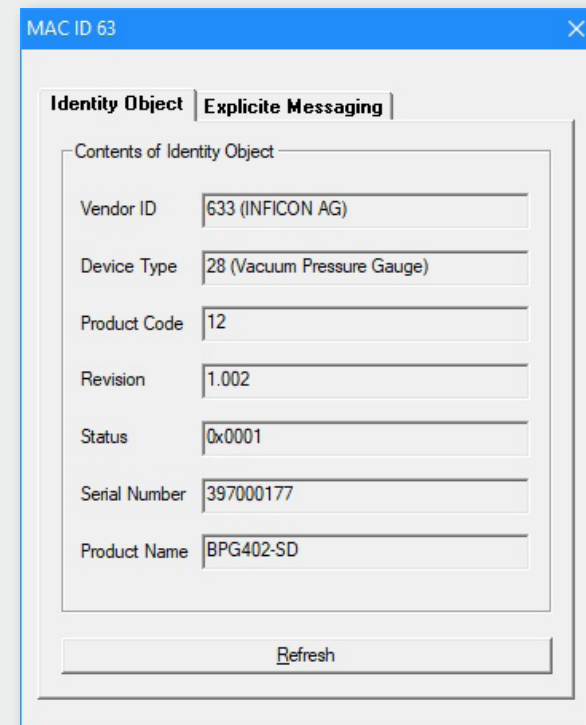
- Select the configured adapter
- Baudrate settings
- Transmission of messages
- Display of received messages



After pressing the „Start“ button, the isDNet USB initializes the firmware and starts searching for other DeviceNet nodes. All found nodes are listed in the dialog window.



The button "Communicate with Node" opens a new dialog window that allows to send and receive data to and from the selected node. After opening this dialog the program reads and displays all data that identifies the node.



By clicking on “Explicite Messaging” you can send and receive explicite messages.

The image displays three sequential screenshots of a software interface titled "MAC ID 63". Each window has two tabs: "Identity Object" and "Explicite Messaging". The "Explicite Messaging" tab is active in all three. Each window contains a form with the following fields:

- Service:** A dropdown menu.
- Class:** A text input field.
- Instance:** A text input field.
- Attribute:** A text input field.
- Data to send:** A large text area.
- Data received:** A large text area.
- Apply:** A button at the bottom.

First Screenshot: The "Service" dropdown is set to "Get_Attribute_Single" and the "Attribute" field contains the value "14". The "Data received" field displays: "Array of 10 BYTE(hex): 09,42,50,47,34,30,32,2D,53,44" and "Text of Length 9 : 'BPG402-SD'".

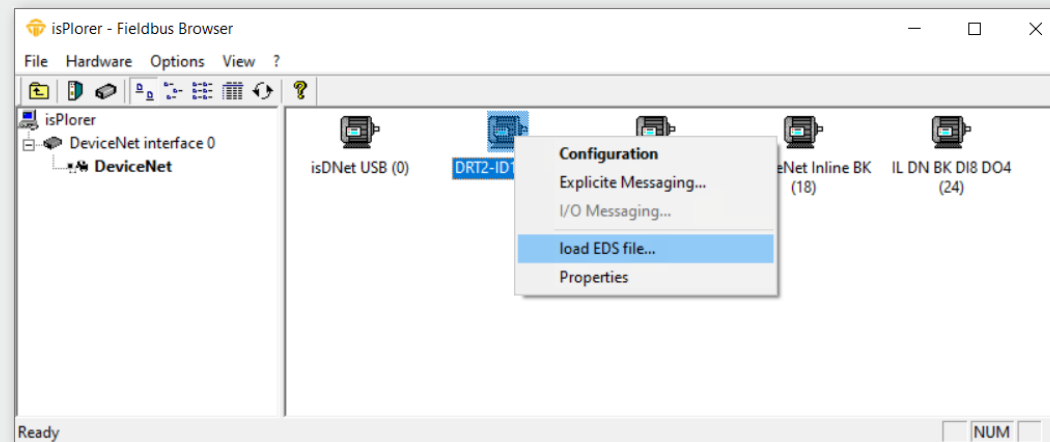
Second Screenshot: The "Service" dropdown is set to "Set_Attribute_Single" and the "Attribute" field contains the value "16". The "Data received" field is empty.

Third Screenshot: The "Service" dropdown is set to "other service ---->" and the "Attribute" field contains the value "16". The "Data received" field is empty.

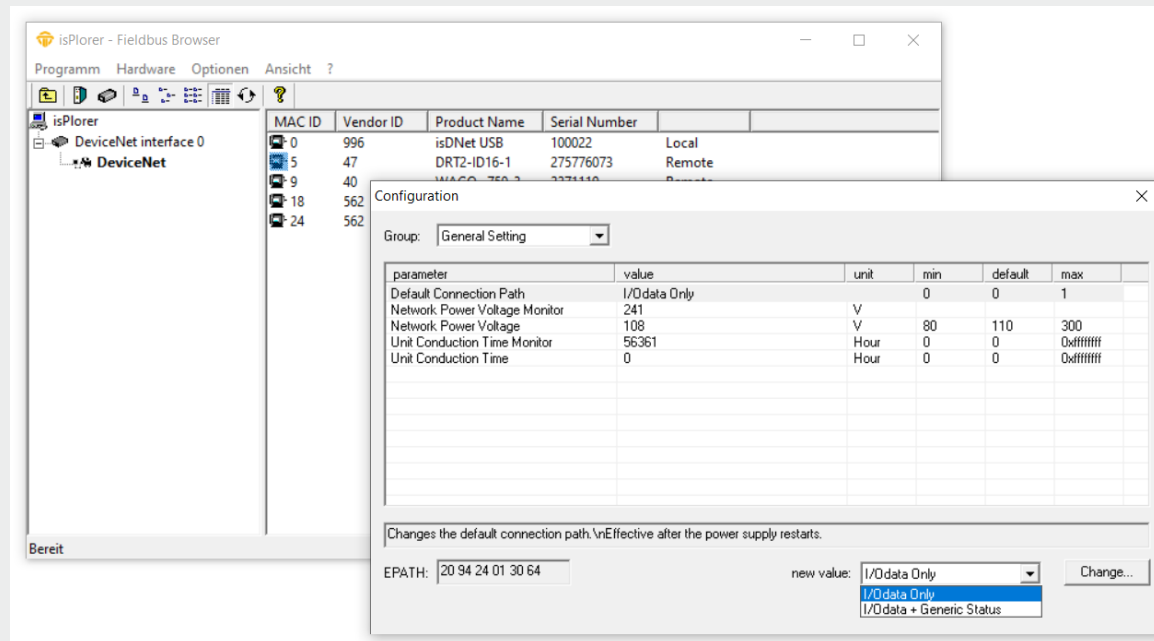
2.5 isPlorer

The isPlorer demo software included in the scope of delivery makes it possible to perform simple tasks, such as loading EDS files and then reading or writing parameters. Before starting the program, the device must be added to the isDNet DriverConfig configuration program (see chapter “2.3 Configuration and Commissioning” on page 11). After the subsequent start of isPlorer, the device appears on the left in a tree view together with the DeviceNet connection belonging to the device.

By selecting the menu item Initialize... from the context menu, the device is initialized. Once the initialization phase is complete, the isPlorer program searches the bus for connected devices and displays them in the right-hand pane. The detailed view shows further information such as the product name and the serial number of the connected devices.



After loading the EDS file (to be called up via the context menu), the parameters can be read from the device.
The parameters are displayed according to the descriptions stored in the EDS file.
Individual parameters can also be changed and written back to the device according to the descriptions in the EDS file.



3. Document History

Version	Date	Description
1.0	06.01.2012	initial version
1.1	09.05.2017	new images
1.2	05.14.2020	new graphics, images and texts
1.3	05.18.2021	content extended
1.4	04.17.2023	added UK Conformity Assessed marking
1.5	12.10.2024	content extended

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