

PROTOCOL CONVERTER UNIGATE® CL



- Easy installation
- Norm compliant
- Ready-to-use
- Configurable
- Programmable
- Designed & manufactured in Germany

THE INTELLIGENT PROTOCOL CONVERTER FOR



**A SOLUTION FOR ALL DEVICES
WITH A SERIAL INTERFACE**



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your ticket to all buses

The intelligent Protocol Converter

UNIGATE® CL – The solution for all devices with a serial interface

The Protocol Converter UNIGATE® CL connects devices such as automation components via their serial interfaces to the required fieldbus or industrial Ethernet standard. RS232, RS485 and RS422 interfaces are on Board as a standard feature.

The communication between the serial side and the bus takes place either through the device configuration and a selection of the commercially available protocol, such as Modbus ASCII, Modbus RTU (Master or slave), 3964 (R), RK512, DIN measuring bus, DIN 19244, or the device is controlled by a script.

This Script is created with the free PC tool, 'Protocol Developer'. You decide whether you want to program the Script yourself or hire Deutschmann Automation to do so.

A special feature of the UNIGATE® CL series is Brand labeling. With the customized design Deutschmann Automation not only gives you the opportunity to pre-configure the device and choose different housing colors, you can also apply your own logo.



Your Advantage

With the UNIGATE® CL modules from Deutschmann you bring existing components into modern networks. As a device manufacturer you save the self-development of the respective fieldbus or Ethernet based interfaces. The consistency of the Deutschmann UNIGATE® CL series allows once generated configurations and scripts to be used for other fieldbus and Ethernet based versions.

Advantage Deutschmann – This speaks for UNIGATE® CL

- ▼ Available for the most fieldbus and Industrial Ethernet versions
- ▼ RS232, RS485- and RS422 interfaces are on Board
- ▼ Same design on the serial side in all bus versions
- ▼ The fieldbus or Ethernet side meets the standards, respectively the standard market models.
- ▼ SSI protocol is supported e.g. for encoder
- ▼ Built-in isolation on the bus side, optionally on the serial side
- ▼ Configuration of the module via configuration tool WINGATE
- ▼ Free programming with Protocol Developer (Deutschmann Script language)
- ▼ No adjustment of the device firmware needed
- ▼ Additional debug interface on board
- ▼ Modern, slim, DIN rail
- ▼ Same Dimensions in all bus variants
- ▼ Brand labeling, pre-configured according to the customer
- ▼ Wide voltage range from 10 to 33 VDC
- ▼ When using the RS485 interface, multiple terminal devices can be used on a Protocol Converter (e.g. Modbus RTU).

Application example

Point-To-Point-Connection

Between the UNIGATE® and a component via one of the serial interfaces.

Component



BUS

PLC-Master

Master-Slave-Structure

When using the RS485-interface several terminal units can be linked and addressed specifically at the corresponding protocol (e. g. Modbus RTU-Master).

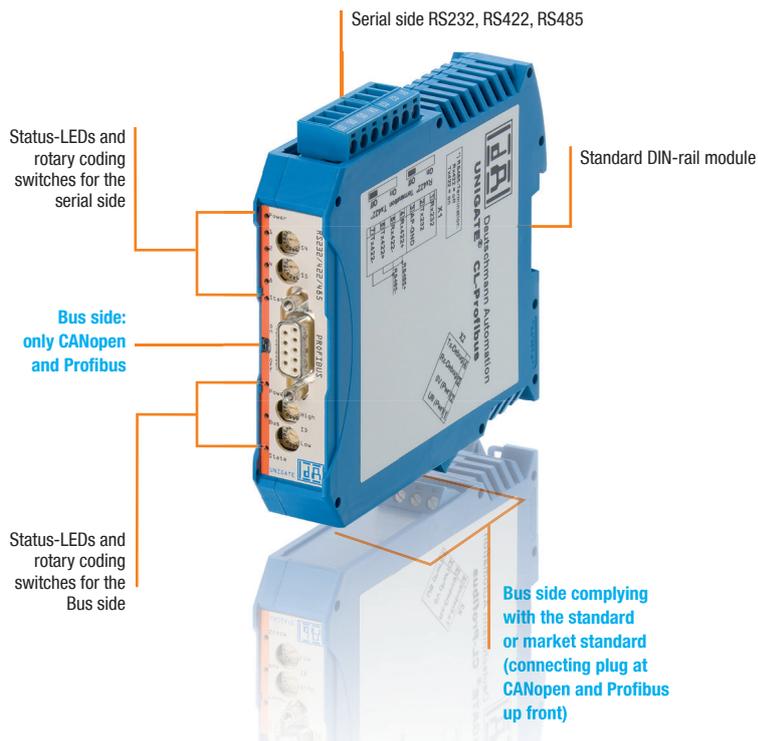
Components 1-n



BUS

PLC-Master

UNIGATE® CL design



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Point to point connection via any serial interface

SSI protocol is supported e.g. encoder

Master-slave structure, e.g. with Modbus RTU

The converter can operate as a master or a slave

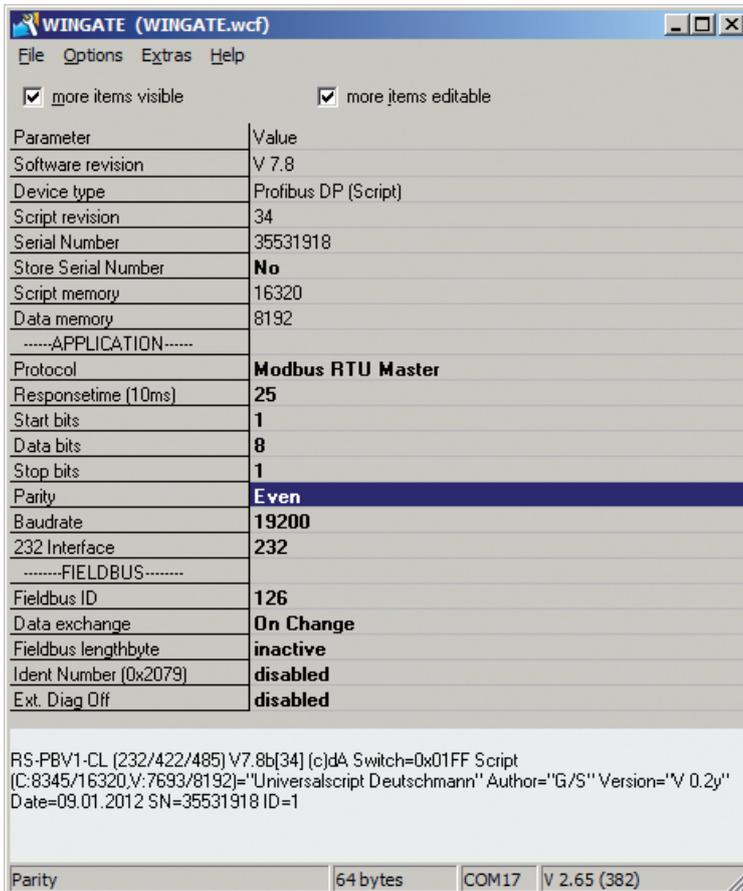
Same mechanical design of all bus versions

Space-saving housing

Wide voltage range

Brand labeling

- own logo
- own article description
- Pre-configuration, import your own script
- Neutral packaging
- Own front panel designed for your CI
- Own housing color



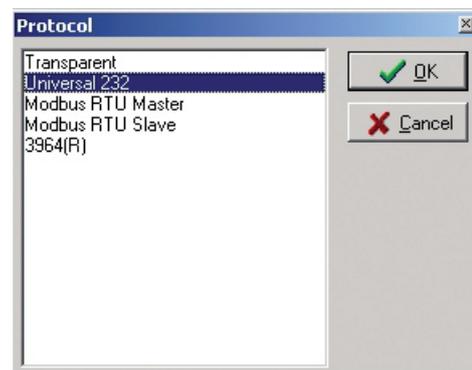
Picture 1: WINGATE® main window

The implementation of the serial interface onto the industrial network is configured with the configuration tool WINGATE®. WINGATE® is running on Windows. The configuration is loaded from the PC into the CL. A once created configuration can be saved and loaded in WINGATE® time and time again. It goes without saying that the created configuration can also be loaded from the UNIGATE® into the WINGATE®.

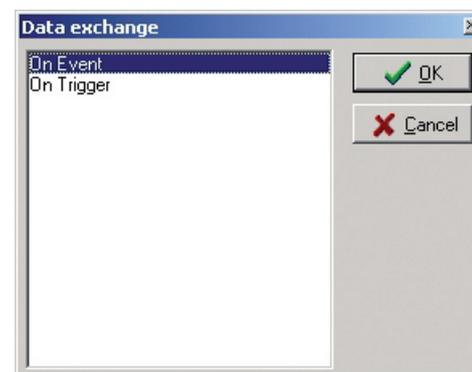
All CL models can handle the market standard protocols 3964(R), RK512, DIN 19244, DIN 66348-2 (measurement bus), Modbus ASCII and Modbus RTU (Master and Slave operation possible), and also a universal 232-protocol for a transparent data exchange.

The Technical Support of Deutschmann is by your side, whether you have any questions or need help generating your configuration.

The devices can be delivered pre-configured.



Picture 2: market standard protocols (extract)



Picture 3: subwindow parameter selection

- **Comfortable configuration**
- **consistency for each bus**
- **Additional fieldbus mechanism**



Protocol Developer

Deutschmann Script language



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The heart of the Deutschmann UNIGATE® / Gateway series

- ▼ Flexible solutions are needed. With the usual configuration tools for protocol converters and gateways, the user has to work with the specifications of the manufacturer. To change this unfortunate condition Deutschmann developed its own script language as early as in 1999.
- ▼ The user only needs to process the data of the bus and barely has to look after the special characteristics of the fieldbus.
- ▼ The Protocol Developer supports a variety of functions to fit the received or to send data into the right "form". Mathematics- or memory processing commands are known from other Script languages and are easy to understand implemented, even for laymen.
- ▼ Also the neatly arranged selection of examples enables a quick introduction to laymen.
- ▼ Another highlight is the included debug functionality. The common functionalities such as Single-step, running and stopping on breakpoint are available.
- ▼ Great emphasis is put on data security. You can activate special error detection routines on request.

- ▼ **Comfortable script commands**
- ▼ **Wide range of functions**
- ▼ **Marketable protocols are included as a script command**
- ▼ **Quick induction**

What exactly is a script?

A script is a sequence of commands executed in a given order. A command is always a small, firmly outlined task. The script language also knows commands that control the program flow in the script, which is why you can assemble even complex processes with these simple commands.

Command groups overview

Declarations	variable declaration
Flow Control	Subfunction calls, jumps, branches
Math	Mathematical functions, data conversions
Communication	Send and receive data
Device Control	Set and read parameters. For example the baud rate for the serial interface.
Bus Specific	bus-specific values



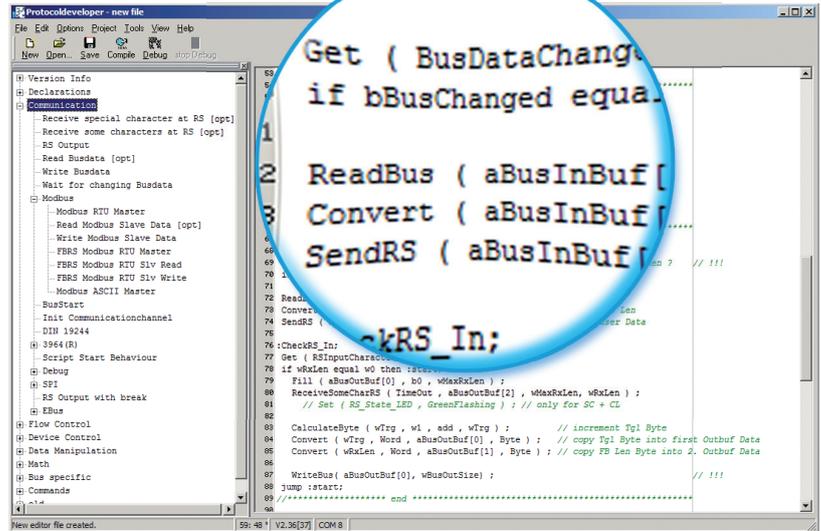


The amount of tasks which can be handled with a script is infinite.

Scripts are imaginable which

- automatically determine a participants data at the serial interface, edit this data and then outline it in the bus
- only carry out action if the bus data is altered
- carry out timed actions
- share communication states
- exchange the data between 2 serial participants (RS485) and present the state in the bus

The script programming gives you a flexible possibility to solve your communication task. On both sides, i.e., on the RS-side and on the bus side, data can be edited, converted and arranged.

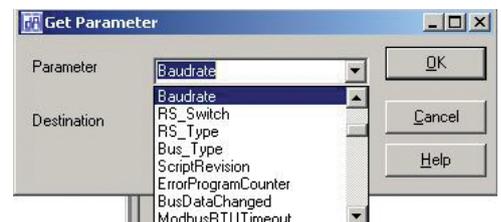


Picture 1: script example in the Protocol Developer

The 1x1 of the Protocol Developer

Picture one shows you an example script in the editor surface and the tree view of all available commands (Command-Tree). It is the tool for easy script generating for our script gateways, its operation is aimed on it.

In addition to programming via text commands, the Command-Tree also offers dialogue-based programming. If defined, and necessary for the correlating command, a dialogue goes through the command parameters (picture 2) and inserts the resulting command into the script.



Picture 2: command parameters

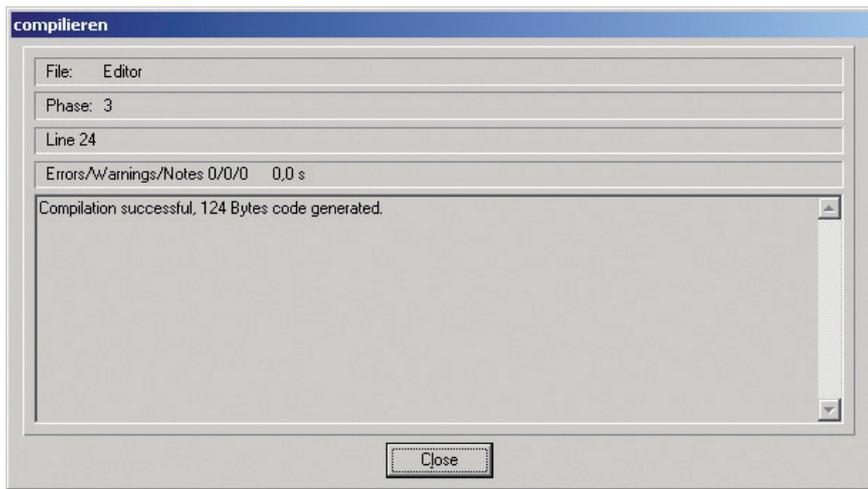


Compile

Before a script can be loaded into a UNIGATE®, it has to be compiled. The resulting code is very storage efficient. Even extensive scripts fit comfortably in the internal memory of the UNIGATE®.

The loading of a script into the device can be done directly from the PROTOCOL DEVELOPER. For serial programming a script-download tool is available.

- Integrated debug environment
- Convenient testing of the script
- Memory efficient compilation of script code
- Examples for each script command
- Templates for each bus variant
- Workshops
- Support by phone / E-Mail

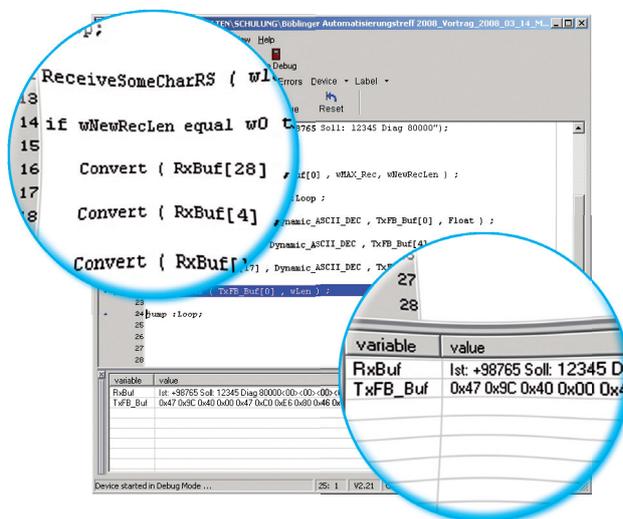


Picture 3: compilation

Debuggen

All UNIGATE® CL devices have a built-in debugging interface. A special debug software is not needed. To test even extensive scripts quickly you'll find many functions for comfortable debugging, such as

- Breakpoints
- Single-step
- Display of the variables and their values
- Error display



Picture 4: debug window with variables and their content

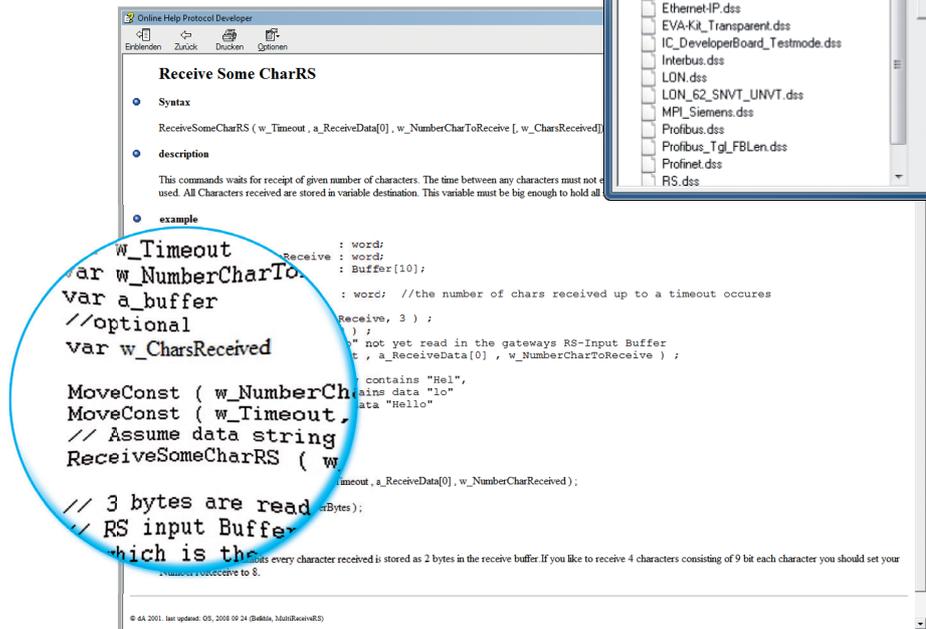
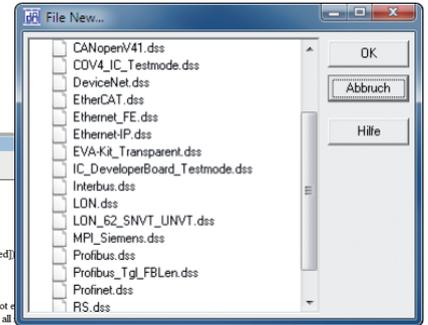


Support

The Protocol Developer contains a context-sensitive help function, in which a detailed description of all script commands is included.

Templates for different tasks and bus variants can be transferred directly and adapted to your own needs.

Picture 5: extract of the templates



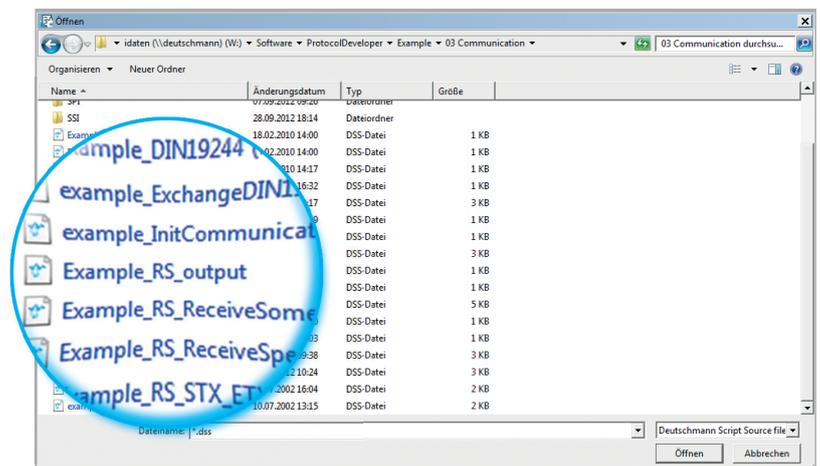
Picture 6: online help

Sample scripts

The free of cost Protocol Developer includes commented script examples for every script command.

In addition to our free hotline, you'll find further support in form of the latest versions of manuals and software tools available for free on our web page.

(www.deutschmann.com)



Picture 7: extensive library with example scripts



Protocol Developer



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Advantage Deuschmann – Flexibility

- ▼ No changes in your own firmware necessary
- ▼ Flexible and powerful script language, specifically created for the bus communication
- ▼ Easy to handle
- ▼ Customized commands on demand. For example if functions are missing or an optimization for time critical application is needed.
- ▼ You can create your own script, or Deuschmann creates your script for you
- ▼ Extensive support through help function, templates, examples, hotline and Workshops
- ▼ Devices can also be factory fitted with your script
- ▼ Scripts run on the UNIGATE® CL, UNIGATE® IC and UNIGATE® FC series
- ▼ Easy adaption for existing scripts to more fieldbuses and industrial Ethernet.

- ▼ **Integrated debug environment**
- ▼ **Convenient testing of the script**
- ▼ **Memory efficient compilation of script code**
- ▼ **Examples for each script command**
- ▼ **Templates for each bus variant**
- ▼ **Workshops**
- ▼ **Support by phone / E-Mail**

UNIGATE® CL Starterkit – Affordable and compact

Deuschmann Starterkits are arranged in a way, which enables you to connect your product to the selected Fieldbus or Industrial Ethernet at the laboratory bench fast and low-priced. In order to meet the customers' requests our kits are split in two:

- ▼ The Starterkit contains the Gateway UNIGATE® CL in accordance with the selected Bus, the corresponding cables, the voltage supply as well as a CD with the software tools and a manual.
- ▼ The add-on has been designed to provide a simple master simulation. The add-on is quick to install and easy to handle. The included PC software allows to follow, the data exchange through a serial bus window and a bus windows. Depending on the bus versions there is technical literature included. Also you can use the existing bus master instead of the add-on.



Picture 1: Starterkit (Example PROFIBUS DP)



Picture 2: Add-On
(Example PROFIBUS DPV0)

Technical overview

<p>CANopen</p> <p>Art.-No. ● V3554 ● V3708 ● V3771 ● V3867</p>  <ul style="list-style-type: none"> › Complete CANopen-Slave-interface › Max. 32 TPDO and max. 32 RPDO process data objects › Max. 255 Bytes input- and 255 Bytes output data › Baud rate 10kbit/s to 1 Mbit/s › Isolated CANopen interface with 9-pin. D-Sub connector › CANopen peer-to-peer messaging › Generic EDS file 	<p>EtherNet/IP 2Port</p> <p>Art.-No. ● V3819 ● V3861 ● V3879 ● V3870</p>  <ul style="list-style-type: none"> › EtherNet/IP adapter function › Max. 1060 Bytes input- and 1060 Bytes output data › Baud rate 10 or 100 Mbit/s › Isolated Ethernet interface with 2x RJ45 connector › IT functions: Web server, FTP Server › Generic EDS file <p style="text-align: right;"></p>
<p>DeviceNet</p> <p>Art.-No. ● V3555 ● V3686 ● V3772 ● V3868</p>  <ul style="list-style-type: none"> › Complete DeviceNet interface › Max. 255 Bytes input- and 255 Bytes output data › Baud rate 125-500 kbit/s › Isolated DeviceNet interface with 5pin. terminal connection › DeviceNet functions: I/O Slave messaging, polling › Generic EDS file 	<p>Fast Ethernet</p> <p>Art.-No. ● V3611 ● V3643 ● V3775 ● V3871</p>  <ul style="list-style-type: none"> › Complete Fast Ethernet Slave interface › Max. 1024 Bytes input- and 1024 Bytes output data › Baud rate 10 or 100 Mbit/s › Isolated Fast Ethernet interface with 1x RJ45 connector › IT-functions: Web server, FTP Server
<p>EtherCAT®</p> <p>Art.-No. ● V3573 ● V3860 ● V3773 ● V3869</p>  <ul style="list-style-type: none"> › 100 Mbit/s Full-Duplex transmission › Isolated EtherCAT interface with 2x RJ45 connector › Supports CANopen communication objects, PDO and SDO › Max. 512 Bytes input- and 512 Bytes output data 	<p>LONWorks</p> <p>Art.-No. ● V3623 ● V3863 ● V3776 ● V3873</p>  <ul style="list-style-type: none"> › Complete LONWorks slave interface › Max. 512 Bytes input- and 512 Bytes output data, 62 In and Out SNVTs › Baud rate FTT-10A, 78 kBit/s › Isolated LONWorks interface with 4pin. Screw connector › Fixed Neuron ID



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Modbus TCP

Art.-No. ● V3681 ● / V3862
● V3778 ● / V3872



- › Complete Modbus-TCP slave interface
- › Max. 252 Bytes input- and 252 Bytes output data
- › Isolated Ethernet interface

MPI

Art.-No. ● V3556 ● / V3864
● V3779 ● / V3874



- › Complete MPI slave interface
- › Max. 92 Bytes input- and output data
- › Baud rate adjustable via script
- › Isolated MPI interface with 9-pin. D-sub connector

PROFIBUS

Art.-No. ● V3553 ● / V3649
● V3781 ● / V3876



- › Complete PROFIBUS-DP slave interface
- › Max. 244 Bytes input- and 244 Bytes output data, max. 488 Bytes total
- › PROFIBUS address adjustable via rotary switch
- › Automatical Baud rate recognition (9600 bit/s – 12 Mbit/s)
- › Isolated PROFIBUS interface with 9-pin. D-sub connector
- › Generic GSD file

General specifications:

- serial interfaces RS232, RS485, RS422
- Baud rates: 110 bps to 625 Kbaud
- Debug interface
- 2 rotary coding switches on the serial side for free use of the customer
- Operating voltage: 10 to 33Volts
- Dimensions: 23 x 115 x 100 mm (W x D x H), without connector
- Weight approx. 140 g
- DIN rail IP20
- Storage temperature: -40°C to +85°C
- Operating temperature: -40°C to +85°C, variants with RJ45 socket -25°C to +85°C
- Humidity 0% to 95% / non condensing
- CE and bus-specific certifications
- RoHS
- Reach

Delivery

- Each unit is supplied in a single pack
- Bulkpacks and special designs on request

● Deuschmann standard
● Grey housing

● / with galvanic isolation
● / with galvanic isolation

Technical overview

PROFINET 2Port		Art.-No. <ul style="list-style-type: none"> ● V3818 ● V3866 ● V3859 ● V3877 		
	<ul style="list-style-type: none"> › Complete PROFINET-IO-Device interface (slave) › Max. 1440 Bytes input and max. 1440 Bytes output data › Isolated PROFINET interface with 2x RJ45 connector (integrated switch) › 100 Mbit Full-Duplex transmission › 32-Bit microprocessor for fast response time › Generic GSD file 			
				
RS		Art.-No. <ul style="list-style-type: none"> ● V3546 ● V3839 ● V3783 ● V3878 		
	<ul style="list-style-type: none"> › Complex/proprietary protocol implementation based on RS-interface (232/485/422) › Max. 1024 Bytes input and max. 1024 Bytes output data › Modbus RTU/ASCII (master or slave, 3964 oder 3964R and RK512) › Galvanic isolation of the fieldbus RS-side 			

● Deutschmann standard
● Grey housing

● ~~↗~~ with galvanic isolation
● ~~↗~~ with galvanic isolation

Your notes



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General specifications:

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Deutschmann - product line overview

ALL-IN-ONE-BUS NODE UNIGATE® IC/IC2 – Ready-to-install



- › Easy integration into your own electronics
- › Module consists of standard components
- › Connection to your host processor via UART or SPI
- › Flexible protocol adaption via Deutschmann script language
- › Standard protocols like Modbus, 3964R, etc. included
- › Designed and manufactured in Germany

UNIGATE® CX - Flexible Gateways to make incompatible networks compatible



- › Modular Gateway concept
- › Currently approx. 120 versions available
- › Easy configuration
- › Wide voltage and temperature range
- › Designed and manufactured in Germany

UNIGATE® MB - For all devices with Modbus RTU interface



- › RS232, RS485- and RS422 interfaces on Board
- › Easy configuration
- › Modbus RTU (master/slave), Modbus ASCII (master/slave)
- › Up to 24 Modbus requests configurable
- › Modern, slim DINrail
- › Designed and manufactured in Germany



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ELECTRONIC CAM CONTROLS - Still an essential tool



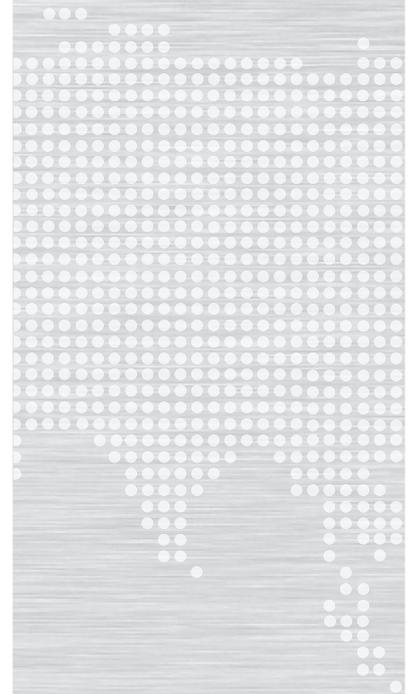
- > Diverse devices
- > Logic functionalities
- > Dynamic idle time compensation
- > Short, constant cycle times and a high number of outputs

Protocol Converter

Embedded systems

Gateways

Electronic Cam Controls



Global availability



The company

Deutschmann Automation, a German company based in Bad Camberg is working in the automation technology since 1976 and became known with cam controls in the 1980s.

In 1989 Deutschmann Automation started operating in the fieldbus technology. The development of one's first own bus system DICNET was an essential step. Since 1996 different fieldbus and Industrial Ethernet products are offered under the brand name UNIGATE®.

Thanks to a competent quality management and continuous enhancement Deutschmann became one of the leading suppliers in the automation industry. The entire development and manufacturing takes place in Germany.

We offer workshops for our All-In-One Bus nodes of the UNIGATE® IC series and the Software tool Protocol Developer. In these workshops you will learn everything you need to know about our products and how you can easily realize your projects with Deutschmann.

For all products the necessary documents and tools can be found, free of cost, on www.deutschmann.com. Furthermore on the Deutschmann Technology Wiki, wiki.deutschmann.de, technological information is easily accessible for our customers and users, cross-linking application know-how and ensuring that the information is up to date.

Our experts in development, sales and support have the right solution for your demands.



Deutschmann
your ticket to all buses



UNIGATE® CL

■ Protocol Converter for all devices with a serial interface



UNIGATE® IC

■ Easy integration into your own electronics



UNIGATE® CX

■ Making incompatible networks compatible

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