THE RESULT MUST AGREE – BUS-TECHNOLOGY MADE BY DEUTSCHMANN!

UNIGATE® CX

The flexible solution to connect incompatible networks

The intelligent Gateway for:

BACnet® CANopen EtherNet/IP EtherCAT
DeviceNet ETHERNET TCP/IP LONWorks MODBUS TCP
MPI ETHERNET POWERLINK PROFIBUS PROFINET

Deutschmann Automation

Cam Controls | Fieldbus Gateways | Industrial Ethernet Products

The intelligent Gateway for the connection of industrial networks - UNIGATE® CX

The flexible solution to connect incompatible networks

In the field of automatic control many different Fieldbuses and Industrial Ethernet became established worldwide. Again and again the task of interconnecting these incompatible networks comes up. The UNIGATE® CX-series was created exactly for that task. The series contains Fieldbus-Slave as well as Industrial Ethernet versions.

The UNIGATE® CX is designed as DIN-rail module and contains the selected Fieldbuses or Ethernet in the mechanical variant carried out in the respective standard. Internally the product is realized by using two UNIGATE® CL-modules. By this modular structure all Fieldbus- and Ethernet-versions can be supplied, provided that the respective CL-modules are available. The number of available versions is growing steadily by the continuous development of new CL-modules e. g. in the Industrial Ethernet field.

In the state of delivery the device is already pre-configured, so that only the bus-specific parameters have to be set.

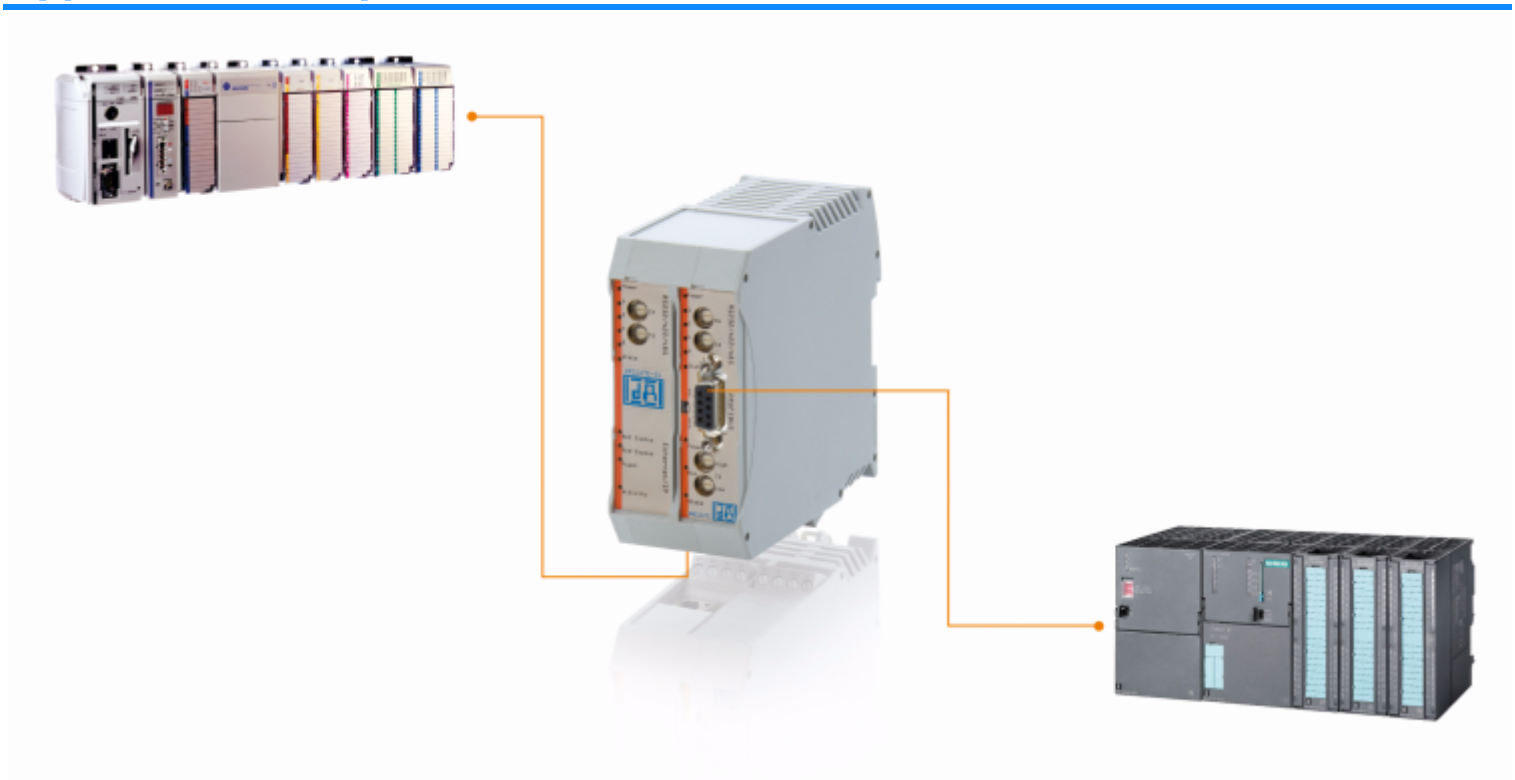
Your advantage

With Deutschmann UNIGATE® CX-modules you bring existing components (also older devices) into modern networks. As device manufacturer you save the development of the interfaces based on the corresponding Fieldbus or Ethernet. Due to the standardization of the Deutschmann UNIGATE® CX-series configurations and Scripts that have been generated once can be used practically without changes for other Fieldbuses or versions based on Ethernet from the UNIGATE® CX-series.

Facts that speak for UNIGATE® CX Gateways by Deutschmann:

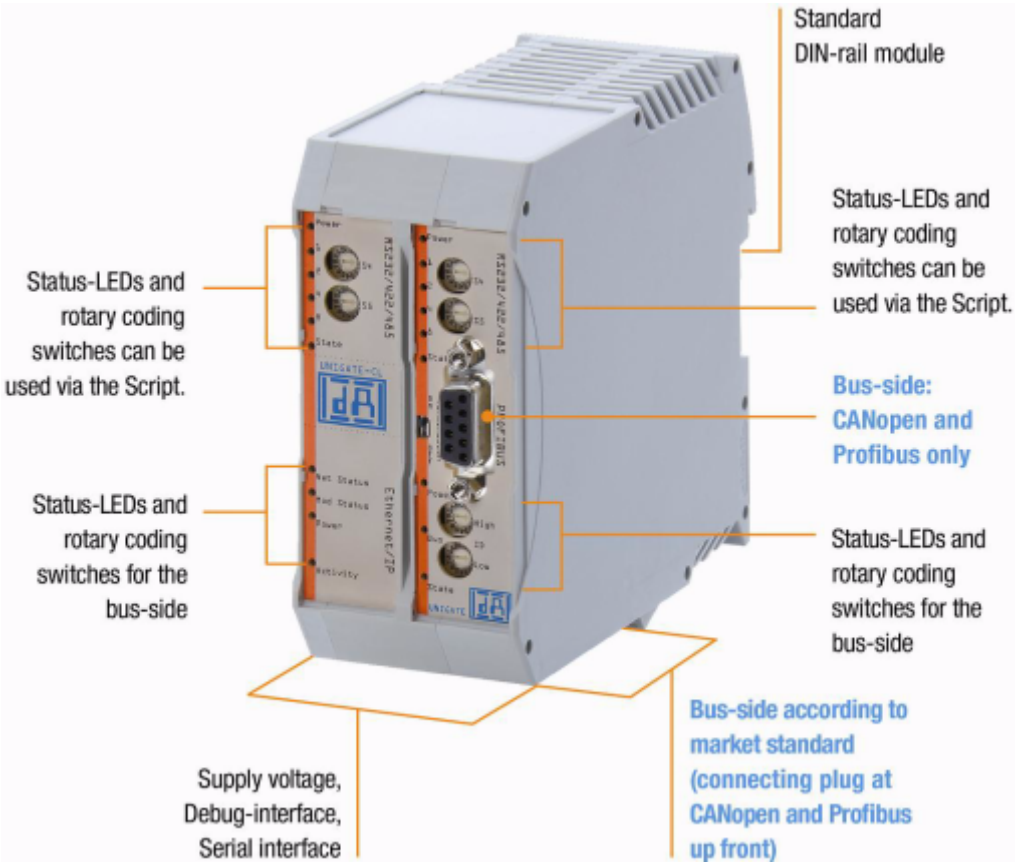
- Available for most Fieldbuses and Industrial Ethernet-versions
- The Fieldbus- or Ethernet-side corresponds to the standards or the commercially available versions
- Integrated isolation on the Bus side; optionally also on the serial side
- Free programming by means of the PROTOCOL DEVELOPER and the Deutschmann Script-language or configuration
- Additional Debug-interface on board – of interest in case the Script language is used
- Modern, slim DIN-rail module
- Identical dimensions for all Bus-versions
- Customized design possible, e. g. your own logo
- Extensive voltage range from 10.0 to 33.0 Volt

Application example



UNIGATE® CX connects different networks among each other, e. g. Ethernet/IP to ProfibusDP

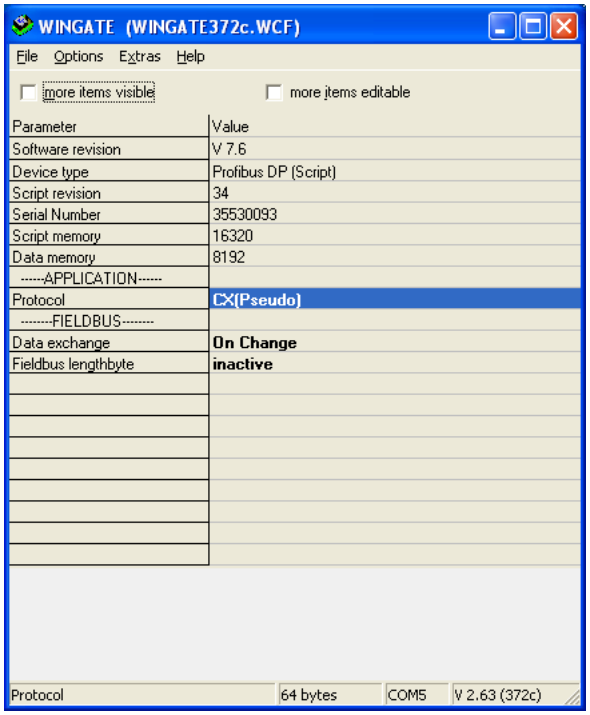
UNIGATE® CX design



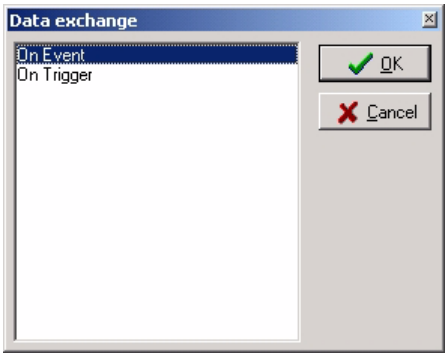
Configuration tool

WINGATE

The UNIGATE® CX-series can be configured with the comfortable configuration tool WINGATE. All models have the standard protocols 3964R and 3964, Modbus ASCII and Modbus RTU (Master- and Slave-operation possible) as well as a Universal 232-protocol for transparent data exchange available. The selection and configuration of the protocols is carried out via the WINGATE-software.



Picture 1: WINGATE main window



Picture 2: Sub-window parameter selection

Exceptions: The versions with LONWorks are not configurable.

Protocol Developer

Our customers are looking for flexible solutions: With good reason.

The Deutschmann Script language came into being in the year 1999 already. Our customer only has to process the data of the bus and he does not have to take care of the specific features of the Fieldbuses and Industrial Ethernet buses. For this programming he does not have to possess knowledge of programming languages, but he generates a Script by means of a Windows-tool 'PROTOCOL DEVELOPER'.

What is a Script?

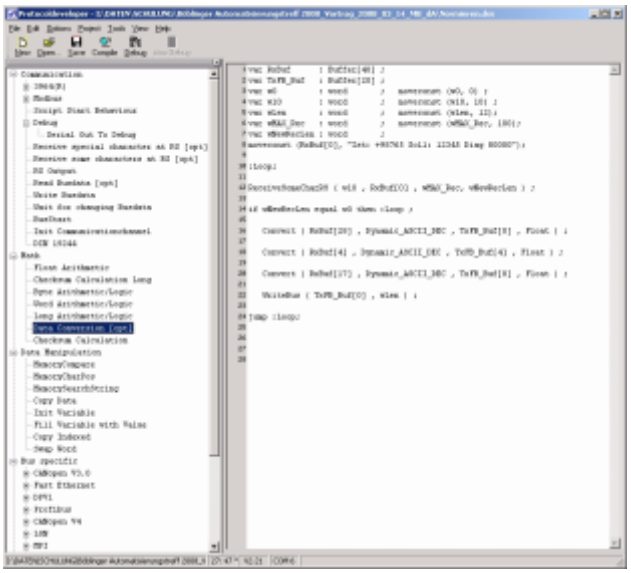
A Script is a sequence of commands, that are executed in that exact order. Because of the fact that also mechanisms are given that control the program flow in the Script it is also possible to assemble more complex processes from these simple commands. The Deutschmann Script language is strongly based upon tools, such as C++. In case you do not want to generate the Script yourself, we are also offering this service.

What can be done with a Script device?

Our Script devices are in the position to process a lot of commands. In this case a command is always a small firmly outlined task. All commands can be put into classes or groups. A group of commands deals with the communication in general. This group's commands enable the Gateway to send and receive data on the serial side as well as on the Bus side.

Following please find the explanation of some command groups on theleft side of the adjacent example window:

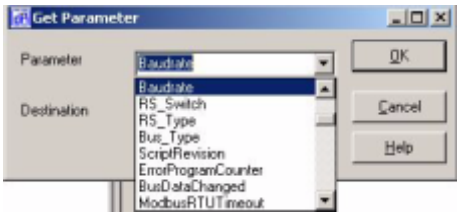
Declarations	Variable declaration
FlowControl	Subfunction calls, jumps, branches
Math	Mathematical functions, data conversions
Communication	Send and receive data
Device control	Set and read parameters. Exemplary the baud rate for the serial interface is mentioned here.
Bus specific	Here commands are placed that enter bus-specific values.



Picture 1: Protocol Developer main window

The amount of tasks, that can be processed with a Script is virtually unlimited. Scripts, that are conceivable:

- automatically acquire data from one participant at the serial interface, edit this data and then present the edited data in the bus over and over again
- carry out actions only in case the bus data changes
- carry out time-controlled actions
- inform of communication states
- exchange data between 2 serial participants (RS485) and present the state in the bus



Picture 2: Function selection window

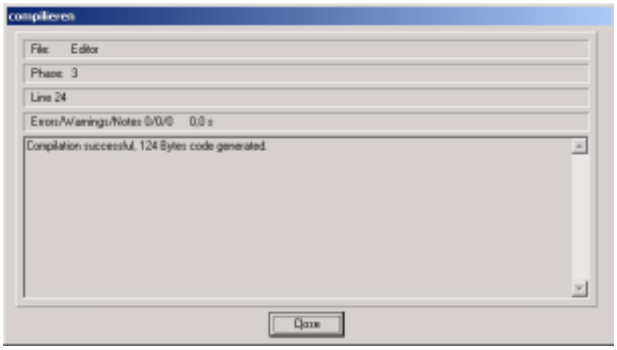
By means of this short enumeration it becomes clear that the Scripts are a flexible solution for your problems. Data can be processed, converted and arranged on both sides (on the RS-side and the Bus side as well). That way the Script basically offers the chance to cope with almost all requirements.

The use of the Protocol Developer

On the right side of the window (picture 1) you see a Script, that shows the simple structure of the syntax. The Protocol Developer is meant as a tool for an easy generation of a Script for our Script Gateways. Its operation is exactly aimed at this use.
Typical for Windows Script commands can be added by means of the mouse or the keyboard. As far as defined and required for the corresponding command, the dialog to the corresponding command is displayed, and after entering the values the right text is automatically added to the Script.

Compiling

After the Script was generated it is compiled. The resulting code is loaded into the device afterwards. This can be carried out with the PROTOCOL DEVELOPER. A Script download tool is also available. The compiled code is very small and because of the large Script memory of the UNIGATE® products also extensive Scripts are possible.



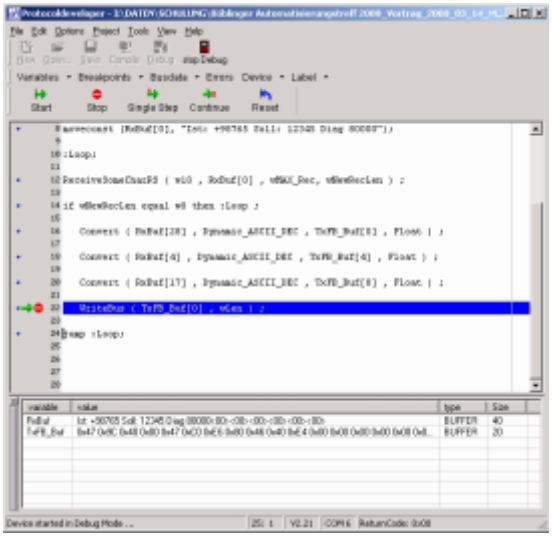
Picture 3: Compilation window with error message and file size

Debugging

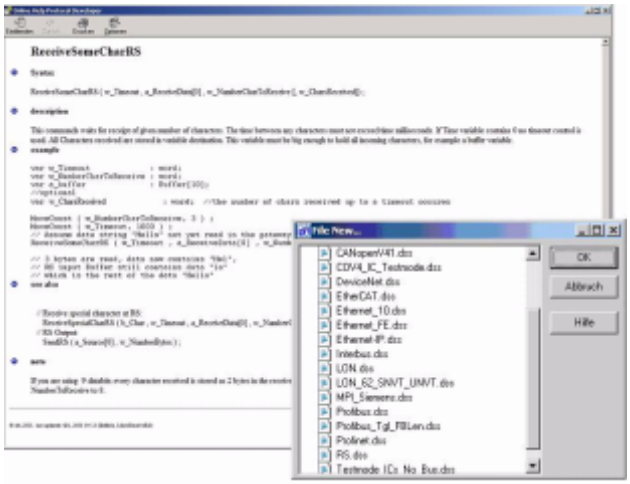
The Debugger enables the control of a UNIGATE® Gateway that is in the Debug-mode. For convenient Debugging further functions, such as

- Break point
- Single-Step
- Display of the variables and their values
- Error indication

are made available. That way also extensive Scripts can be checked quickly.



Picture 4: Debug window with variables and their contents



Picture 5: Online help

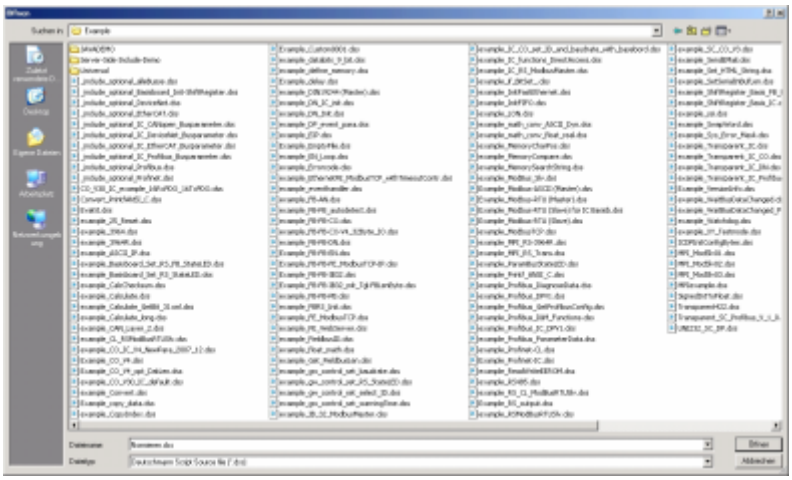
Support

The PROTOCOL DEVELOPER has a context-sensitive help function, that provides an extensive description of each Script command.
Templates for different tasks and bus versions can directly be taken over and adjusted to your requirements.

Picture 6: Extract from the templates

Example Scripts

For each Script command the scope of delivery of the free PROTOCOL DEVELOPER also includes a commented example Script.
More support is available from our free Hotline and on our website the current versions of our instruction manuals and the software tools are also available free of charge (www.deutschmann.de).



Picture 7: Extensive library for example Scripts

Facts that speak for UNIGATE® CX Gateways by Deutschmann:

- Flexible and powerful Script language; especially generated for the bus communication
- Easy to handle. Based upon current tools, such as C++
- On request customized commands, e. g. in case functions are missing or an optimization is required for time-critical applications
- You can generate the Scripts yourself or Deutschmann is also offering the Script-generation as service
- Extensive support by means of help functions, templates, examples, hotline and workshops
- In the initial state devices can already be equipped with your Script

You receive the configuration tool WINGATE, the Protocol Developer
for Script generation as well as extensive Script examples, device description files
and much more free of charge. For further information and the mentioned tools
please log on to our website www.deutschmann.com

General technical data

UNIGATE® CX	
• Fixing	DIN-rail module with integrated grounding
• Supply voltage	Through screw-plug connector
• Operating voltage	10 to 33 Volt
• Protection type	DIN-rail module IP20
• Dimensions	46 x 100 x 115 (B x H x T) for DIN-rail module
• Temperature range	-40°C bis +85°C
• Galvanic division	Standard on the bus sides
• Bus termination resistor	Connectible, depending on the bus version

Bus-specific technical data*

	Bus connection	Bus data	Bus baud rates	Bus ID
CANopen	9 pin D-SUB plug	255 bytes I/O	Adjustable via DIP-switch	Adjustable via DIP-switch
DeviceNet	5 pin screw-plug connector	255 bytes I/O	Adjustable via DIP-switch	Adjustable via DIP-switch
EtherCAT	2 x RJ45	1486 bytes I/O	100 MBaud	Permanent MAC-address, is automatically assigned
Ethernet/IP	1 x RJ45, 2 x RJ45 in preparation	500 bytes I/O	10/100 Mbit	IP-address adjustable via WINGATE
Fast Ethernet Modbus TCP	RJ45	1024 bytes I/O	10/100 Mbit	IP-address via WINGATE or Script
LONWorks62	4 pin screw-plug connector	62 In and Out SNVTs, 1024 bytes I/O	FTT-10A, 78 kBit/s	Permanent Neuron ID
MPI	9 pin D-SUB socket	92 bytes I/O	Adjustable via Script	Adjustable via rotary switch
Ethernet Powerlink	2 x RJ45	1541 bytes I/O	100 Mbit	IP-address adjustable via rotary switch
Profibus	9 pin D-SUB socket	244 bytes I/O	Automatic detection	Adjustable via rotary switch
Profinet	1 x RJ45, 2 x RJ45 in preparation	1440 bytes I/O	100 Mbit	Adjustable via "Device name"

*All combinations are possible.

Accessories

UNIGATE® CX configuration cable
from 2 x serial interface PC to 2 x Debug interface UNIGATE® CX with integrated power supply

PO Box 1108 - D-65516 Bad Camberg - Phone +49-(0)6434-9433-0 - Fax +49-(0)6434-9433-40 - e-mail: info@deutschmann.de - www.deutschmann.com

Version TNR UG_CX_E/11/11