

GATEWAY SERIES UNIGATE[®] CM



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

THE INTELLIGENT
SOLUTION FOR:



**CAN/CANopen TO ALL FIELDBUSES
AND INDUSTRIAL ETHERNET**

DA
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The intelligent solution

UNIGATE® CM - Easily configurable, ready-to-use CAN Gateways

The UNIGATE® CM Gateways connect CAN/CANopen-Participants to all Fieldbus- and Industrial Ethernet systems that are supported by Deutschmann.

With the Deutschmann developed software WINGATE, the reliable components can be quickly and easily configured and immediately be put into operation. The compact IP20 module with dimensions of 23 mm x 115 mm x 100 mm can be easily mounted on the DIN rail.

Besides RS232, RS485 and RS422 standard interfaces, the UNIGATE® CM CANopen Gateway has an additional CAN/CANopen interface with Mini-Master functionality. Hence, the gateways can connect both CANopen networks and individual CANopen devices into higher-level networks. Adaptation of the device-firmware is not necessary. After configuration of the parameters, the gateway is immediately ready for communication. The adjustable values are context-sensitive displayed, dependent on the selected function parameters.

Furthermore, the module can be very flexibly programmed with the Deutschmann developed script language.

On request as for all gateways and protocol converters from Deutschmann the Option I/O 8 is available, with which eight digital I/Os (24 V) can be configured both via the configuration software and by script.

Deutschmann optionally supplies the product pre-configured to customer specification, in different housing colors and with or without the customer logo.



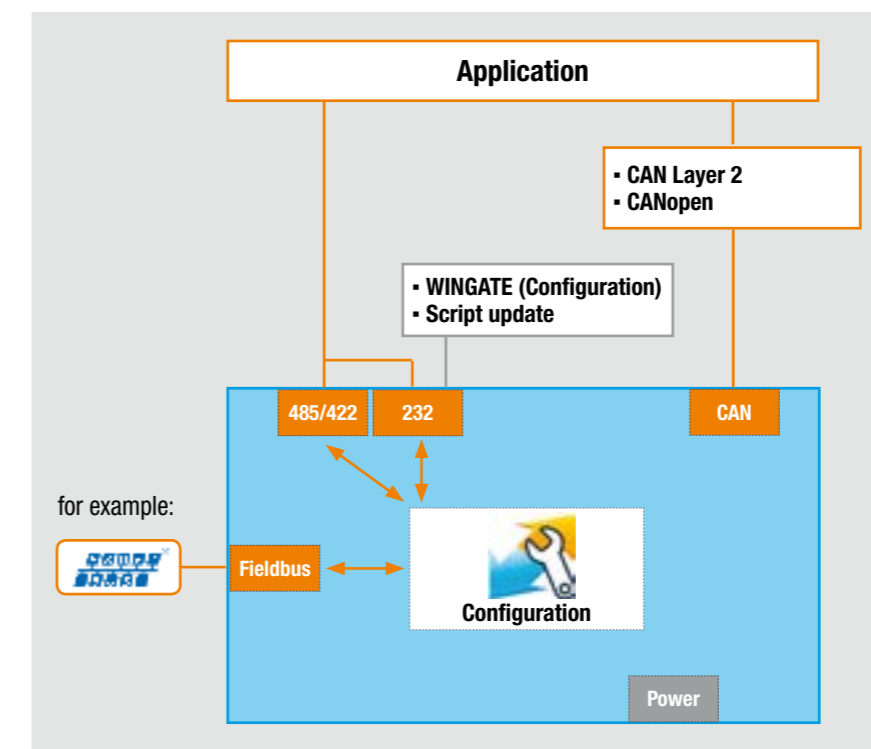
UNIGATE® CM

UNIGATE® CM Detail view of the application side



RS232, RS422, RS485

UNIGATE® CM Overview



Function UNIGATE® CM

The UNIGATE® CM contains an additional CAN/CANopen interface.

The data for CAN is exchanged via configurable protocols. The data exchange for CANopen is handled via CANopen mapping.

Furthermore the CANopen interface contains a Master functionality, with which connected slaves can be set e.g. to "Operational mode".



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- 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

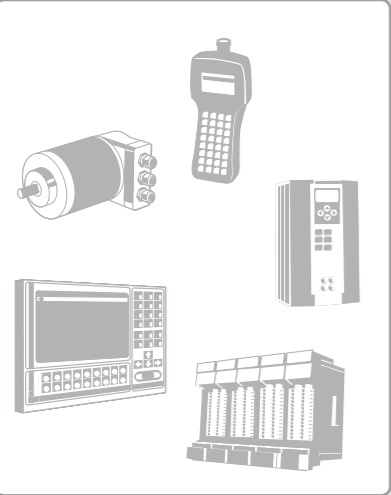
Advantage Deutschmann – This speaks for UNIGATE® CM


- Available for the most fieldbus and Industrial Ethernet versions
- CANopen, RS232, RS485- and RS422 interfaces are on Board
- Same design on the application-side in all bus versions
- The fieldbus or Ethernet side meets the standards, respectively the standard market models.
- Built-in isolation on the bus side
- Configuration of the module via configuration tool WINGATE
- Free programming with Protocol Developer (Deutschmann Script language)
- No adjustment of the device firmware needed
- 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
- Option I/O 8 available

UNIGATE® CM - Fieldbus

Overview of possible applications

CAN
Layer 2 (11/29Bit Identifier)





CANopen

PROFIBUS

PROFINET

EtherCAT

EtherNet/IP

MODBUS TCP

DeviceNet

ETHERNET TCP/IP

CANopen
Master/Slave

The UNIGATE® CM connects your CAN/CANopen participants to a fieldbus or Industrial Ethernet.



Configuration tool WINGATE

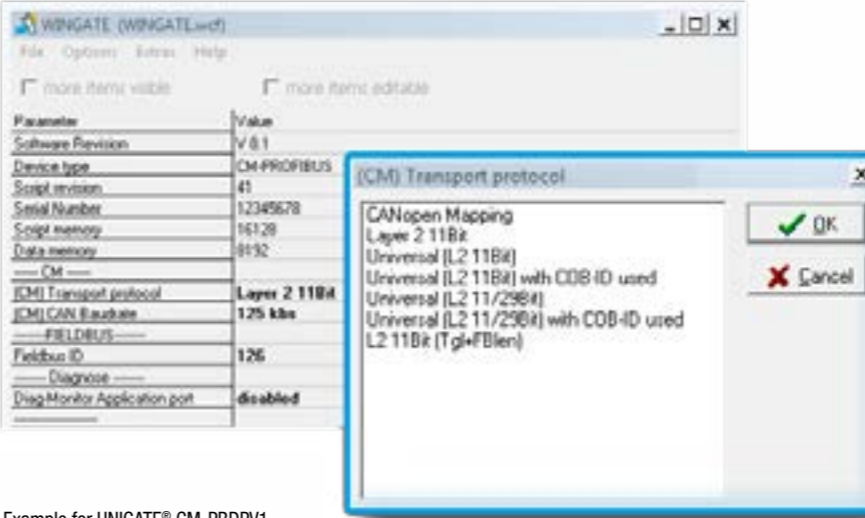
Configuration tool WINGATE

WINGATE® is a configuration software for the Deutschmann UNIGATE® series. The implementation of the CAN/CANopen onto the industrial network is configured with WINGATE.

Advantage WINGATE

- ▼ Comfortable configuration
- ▼ Consistency for each bus
- ▼ Additional fieldbus mechanism
- ▼ Upon delivery the UNIGATE® CM is pre-configured and set to Layer 2 11Bit.

The UNIGATE® CM has transport protocols for CAN and a Mapping for CANopen. These can be configured quickly and conveniently using the WINGATE configuration software.



Parameter	Value
Software Revision	V 8.1
Device type	CM-PROFIBUS
Script revision	41
Serial Number	12345678
Script memory	16128
Data memory	8192
CM	
ICM Transport protocol	Layer 2 11Bit
ICM CAN Baudrate	125 kba
Fieldbus ID	126
Diagnose	
Diag-Monitor Application port	disabled

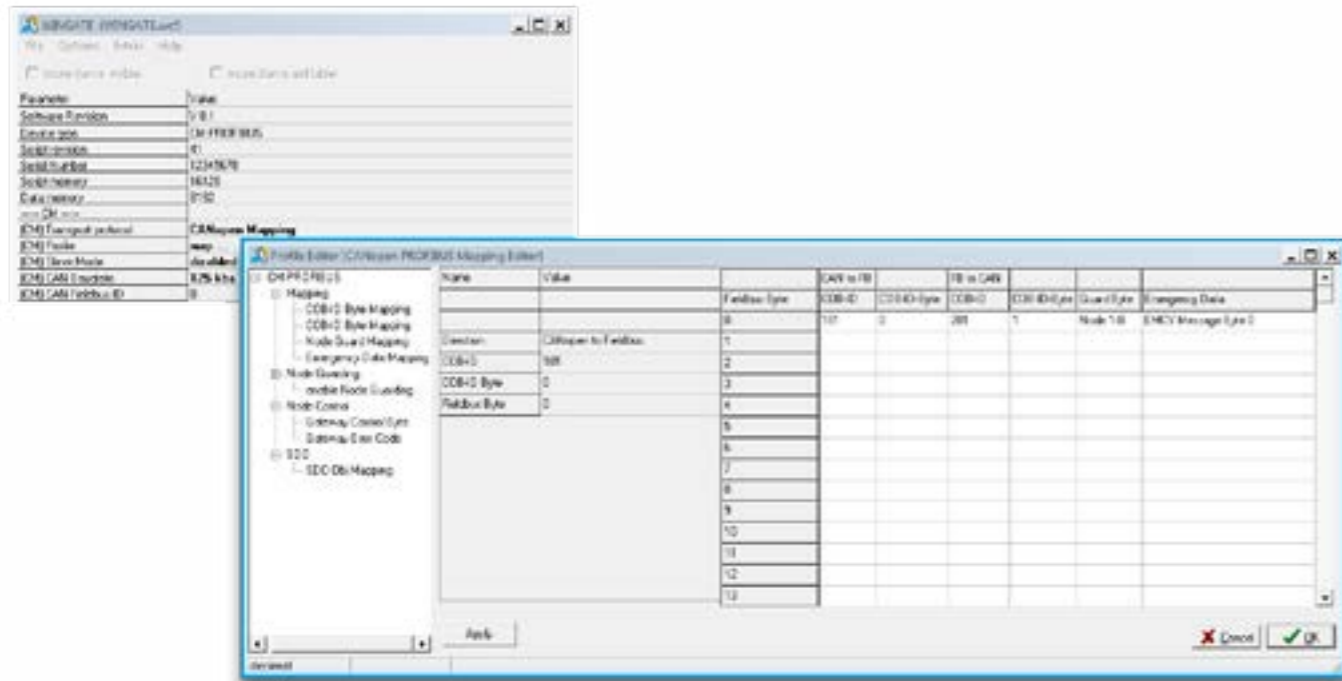
Example for UNIGATE® CM-PBDPV1



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Easy configuration

The UNIGATE® CM also has a Master functionality. With the CANopen mapping available for CANopen, the UNIGATE® CM can be configured as Master or Slave. In addition to mapping COB-IDs, other parameter such as SDO Object Mapping, Node Guard Mapping, Emergency Data Mapping, Node Guarding and Node control are also available.

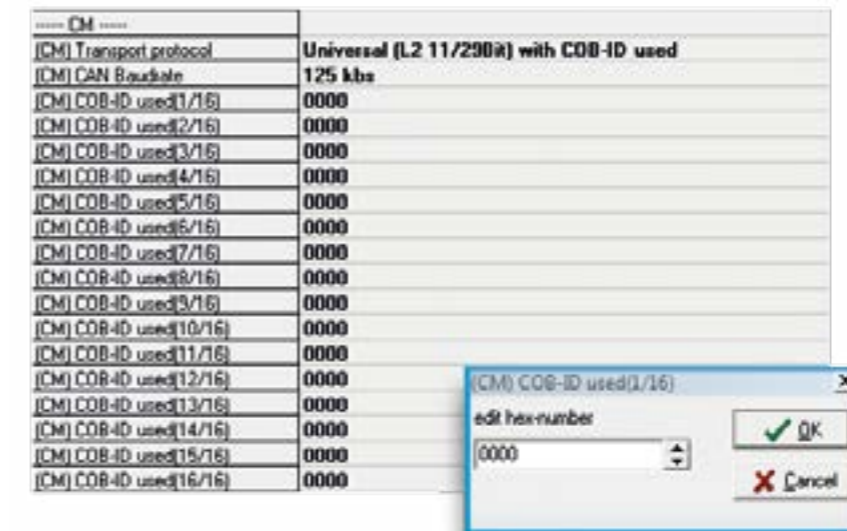


The following transport protocols are available for CAN Layer 2 (11/29Bit Identifier):

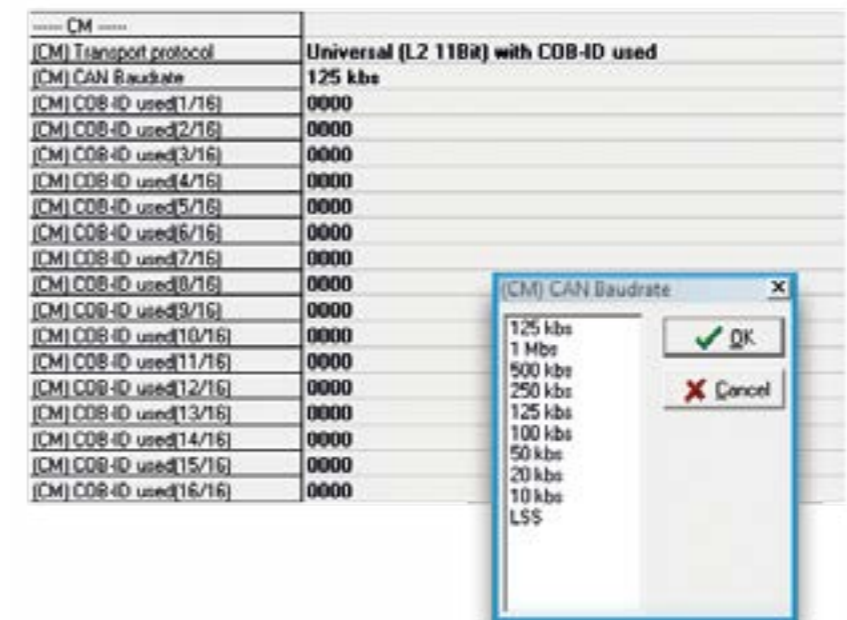
- ▼ Layer 2 11Bit
- ▼ Universal (L2 11Bit)
- ▼ Universal (L2 11Bit) with COB-ID used
- ▼ Universal (L2 11/29Bit)
- ▼ Universal (L2 11/29Bit) with COB-ID used
- ▼ L2 11Bit (Tgl+FBlen)

These transport protocols support CAN 2.0A (11Bit Identifier) or CAN 2.0B (11/29Bit Identifier). Depending on the selected transport protocol, COB-IDs which are to be processed, can be configured. Not needed COB-IDs are filtered.

Easy configuration



Example for UNIGATE® CM-PBDPV1



Example for UNIGATE® CM-PBDPV1

Protocol Developer - Flexibility via Deutschmann Script language

More complex applications, which cannot be presented via a pure configuration can be programmed via the Deutschmann Script language. The Protocol Developer is a free tool for generation of the script. It is easy to use and specifically optimized to the bus communication.

- ▼ 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.

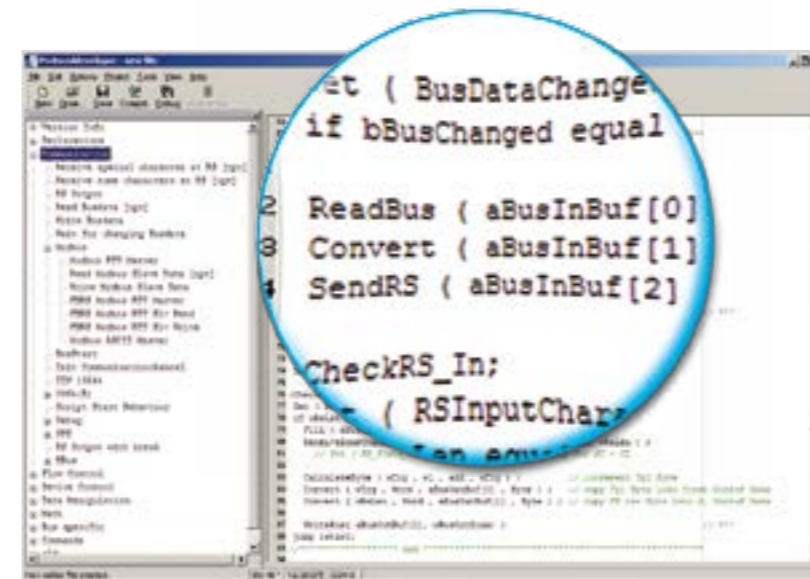
What exactly is a script?

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



Script example in the Protocol Developer

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

Technical overview for the Fieldbus side

<h3>CANopen</h3>  <ul style="list-style-type: none"> › Complete CANopen-Slave-interface › Max. 32 TPDO and max. 32 RPDO process data objects › 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 	<h3>EtherNet/IP 2Port</h3>  <ul style="list-style-type: none"> › EtherNet/IP adapter function › Max. 512 byte input- and 512 byte output data › Baud rate 10 or 100 Mbit/s › Isolated EtherNet interface with 2x RJ45 connector › IT functions: Web server, FTP Server 
<h3>DeviceNet</h3>  <ul style="list-style-type: none"> › Complete DeviceNet interface › Max. 255 Byte input- and 255 Byte output data › Baud rate 125-500 kbit/s › Isolated DeviceNet interface with 5pin. terminal connection › DeviceNet functions: I/O Slave messaging, polling 	<h3>Fast Ethernet (TCP/IP)</h3>  <ul style="list-style-type: none"> › Complete Fast Ethernet Slave interface › Max. 1024 Byte input- and 1024 Byte output data › Baud rate 10 or 100 Mbit/s › Isolated Fast Ethernet interface with 1x RJ45 connector › IT-functions: Web server, FTP Server
<h3>EtherCAT®</h3>  <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. 1024 byte input- and 1024 byte output data 	<h3>Modbus-TCP</h3>  <ul style="list-style-type: none"> › Complete Modbus-TCP slave interface › Max. 252 Byte input- and 252 Byte output data › Isolated Ethernet interface

PROFIBUS DPV1



- › Complete PROFIBUS-DP slave interface
- › Max. 244 Byte input- and 244 output data, max. 488 Byte 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

PROFINET 2Port



- › Complete PROFINET-IO-Device interface (slave)
- › Max. 1440 Byte input and max. 1440 output data
- › Isolated PROFINET interface with 2x RJ45 connector (integrated switch)
- › 100 Mbit/s Full-Duplex transmission
- › 32-Bit microprocessor for fast response time



Option I/O8



- › 8 I/O can be used as In-or Output
- › 24V / 0,7 mA (short term 1A) at max. 3A for all 8 Outputs
- › Short circuit protection
- › Available for the UNIGATE® CL, CM, EL series
- › Designed and manufactured in Germany



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General specifications

- Application-side CM: CAN and CANopen; RS232, RS485, RS422
- Baud rate: 110 Baud to 520 kBaud resp. 625KBaud (depending on device version) with serial, 10/100 MBit/s with Ethernet
- 16K Script memory
- Operating voltage: 10,5 bis 31,6 Volt
- Dimensions: 23 x 115 x 100 mm (B x T x H), without connector
- Weight approx. 160 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
- Each delivery has a DVD with current documents and tools
- Bulkpacks and special designs on request

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



- › RS232, RS485, RS422, SSI (encoder interface) on board
- › Standard protocols can be configured (e.g. Modbus RTU, Modbus ASCII, 3964R...), more protocols can be included if needed
- › Flexible protocol adaption via Deutschmann script language
- › Module consists of standard components
- › Designed and manufactured in Germany

UNIGATE® EL – Fast Ethernet to all Fieldbuses



- › Application-side: Fast Ethernet, RS232, RS485, RS422, SSI (encoder interface) on board
- › Transport protocols can be configured (e.g. TCP server (port23) default, UDP, TCP server, TCP client, Modbus TCP server, Modbus TCP client)
- › Flexible protocol adaption via Deutschmann script language
- › Module consists of standard components
- › Designed and manufactured in Germany

ALL-IN-ONE-BUS NODE UNIGATE® IC – 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® FC - The connectable Multi-Protocol-Module



- › 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 - The flexible Gateway 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

Option I/O 8



- › 24V / 0,7 mA (short term 1A) at max. 3A for all 8 Outputs
- › Short circuit protection
- › Available for the UNIGATE® CL, CM, EL series
- › Designed and manufactured in Germany



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Protocol Converter

Embedded Systems

Gateways

Option I/O 8

UNIGATE® CM now with



What is PriorityChannel?

PriorityChannel eliminates the effects of network traffic loading on the device – ensuring accurate cycle-time response and safeguarding against unwanted disconnects. Industrial Ethernet has many network traffic components. In addition to the time critical cyclic messages, there are standard Ethernet messages being routed, Network Management protocols running, and Application Layer sending messages. All of these other components can interfere with the cyclic messages causing them to be delay and introducing jitter.

PriorityChannel is a combination of software optimized on the unique, patented architecture of the fido1100 communication controller to separate non real-time Ethernet traffic from real-time Industrial Ethernet traffic. This is not just a special queue or sophisticated filtering. The silicon provides a separate data pathway and a separate on-chip execution environment for real-time messages to tunnel straight to the device application. Non real-time messages can never interrupt real-time messages making it possible to stay well within 160 µs of the desired EtherNet/IP cycle time, and within 10 µs of the desired Profinet cycle time.

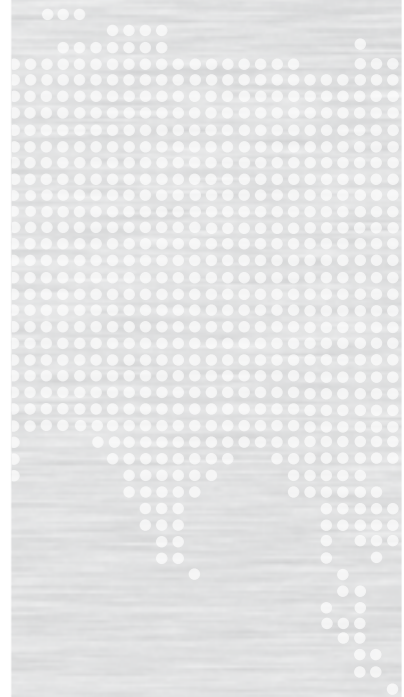
Why do you need PriorityChannel?

Conventional Industrial Ethernet solutions have difficulty dealing with critical messages when network traffic increases, resulting in unpredictable packet delays, excessive latency, or even connection failure. You can't rely on the fact that factory networks will be properly segmented to keep traffic well behaved. Given the flexibility and myriad of capabilities Industrial Ethernet brings to the factory, you don't know how the network will morph over time. How do you know your device will survive?

You need PriorityChannel to protect your device from the uncertainties on the factory floor. Regardless of the network condition or load, PriorityChannel to eliminate the effects of network traffic now and in the future. Critical messages are delivered on-time, every time without packet delays or excessive latency. The bottom line is, Priority Channel ensures your device will never disconnect from the network.

PriorityChannel is a feature of the FIDO products from Innovasic.

 **PriorityChannel™ is integrated in all Deutschmann PROFINET & EtherNet/IP products.**



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. Additionally the Deutschmann Technology Wiki, wiki.deutschmann.de, makes technological information 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
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UNIGATE® CL

- Protocol Converter for all devices with a serial interface



UNIGATE® IC

- Easy integration into your own electronics



UNIGATE® FC

- Connectable Multi-Protocol-Module



UNIGATE® CX

- Making incompatible networks compatible



UNIGATE® EL

- Fast Ethernet to all Fieldbuses



UNIGATE® CM

- CANopen to all Fieldbuses and Ethernet

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