DATA PANEL

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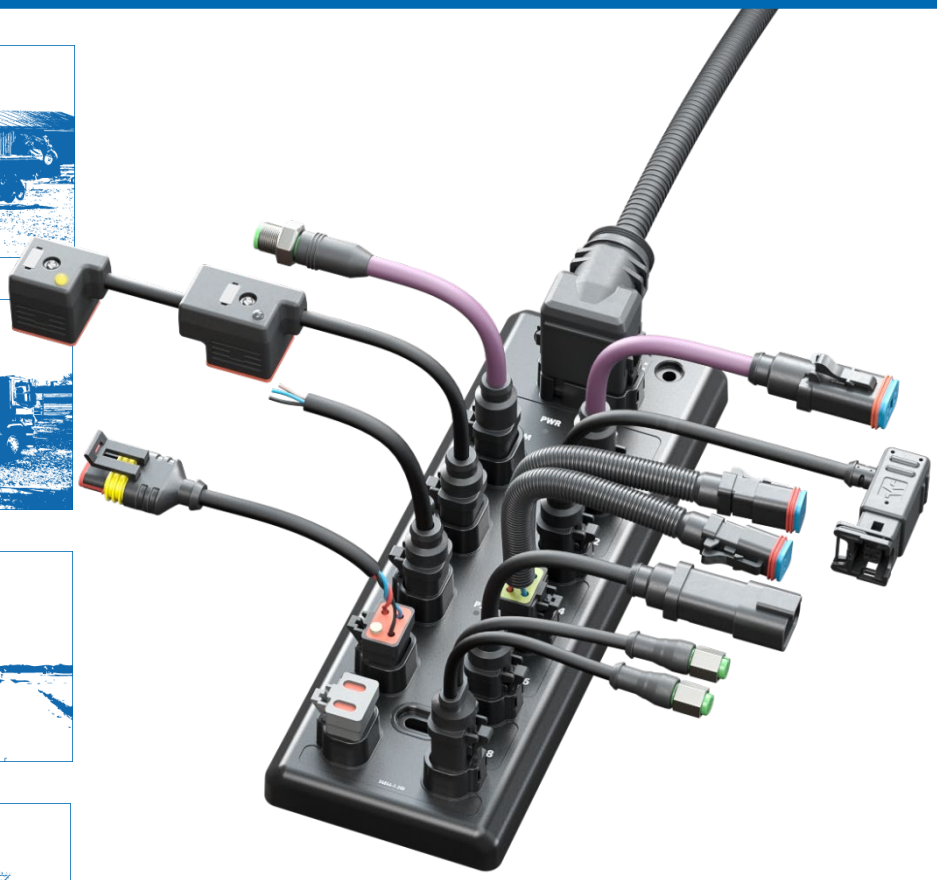

MANUAL: ENGLISH

For Modules of the xtremeDB series, CANopen

Manual Number: DP-34044-x-200

Direct link:

This document applies to the following products:

Item no.	Name
DP-34044-1-200	xDB0808-DIO CANOPEN (xtremeDB 8 inputs to 8 outputs, CANopen)
DP-34044-2-200	xDB-16-ADI CANOPEN (xtremeDB 16 inputs, CANopen)
DP-34044-3-200	xDB-16-PWM CANOPEN (xtremeDB 16 DO to PWM(i) outputs, CANopen)
DP-34044-5-200	xDB-16-DO CANOPEN (xtremeDB 16 DO, CANopen)

NOTE

Original document

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Table of Contents

1. Introduction

1.1 Service and Support

Distribution

Our sales staff in the office and in the field, as well as our technicians, will support you at any time.

Support

The employees of our support department will help you with all questions regarding installation and commissioning. Support includes hardware and software integration of these products with products from other manufacturers.

Numerous support tools and measurement options are available for fieldbus systems as well as for EMC influences.
Call us at +49 (0) 7191 904 369-10 or send an e-mail to: support@data-panel.eu

Service addresses

Data Panel GmbH values proximity, nationally and around the world.

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INTERNATIONAL
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www.murrelektronik.com

1.2 About This Document

RECOMMENDATION

Read this document in a digital format, such as a smartphone, to take advantage of the many cross-references and links.

Function of this document

This document instructs the technical personnel of the machine manufacturer or machine operator on the safe use of the modules (devices) described in 3.3 Overview of product variants.

It **does not** instruct on the safe use of the machine in which the modules (devices) are or will be integrated. Information on this can be found in the operating instructions for the machine.

1.3 Supplied Documents

Document	Reference
Operating instructions	On our website or in the online store: ➔ See the tab "Downloads / Legal Info.“ under the product at www.data-panel.eu
Product data sheets	On our website or in the online store: ➔ See the tab "Downloads / Legal Info.“ under the product at www.data-panel.eu

1.4 Symbolism

This document contains information and notes that you must observe to maintain safety and to prevent personal injury and damage to property.

They are marked as follows:

DANGER!

Immediate danger

Failure to observe the warning will result directly in death or serious injury.

➔ Escape or take measures to avert the danger

WARNING!

Potential danger

Failure to observe the warning may result in death or serious injury.

➔ Escape or take measures to avert the danger

CAUTION!

Hazard with low risk

Failure to observe the warning will result in minor to moderate bodily injury.

➔ Escape or take measures to avert the danger

ATTENTION

Risk of property damage

Failure to observe the warning notice will result in property damage.

➔ Escape or take measures to avert the danger

NOTE

Further technical information and notes from Data Panel GmbH.

➔ Escape or take measures to avert the danger

RECOMMENDATION

Notes with this symbol are the recommendations of Data Panel GmbH.

Products and accessories

This symbol refers to accessories or product recommendations.

Instruction for action

➔ An arrow indicates instructions for action

➔ Read and follow the instructions for action

1 | In the case of numbered instructions for action, the order must be strictly observed

2 | Read and follow the instructions for action

Hexadecimal numbers

Hexadecimal numbers are in the **0x notation** common for programmers Shown.

An example of common representation types for info: **0x15AE** = 15AE16, 15AEhex, 15AEh, 15AE H, 15AEH, $15AE, "15AE and X'15AE '

1.5 Trademark (Copyright)

The trademarks of the following companies and institutions are used in this documentation:

CiA	CAN in AUTOMATION - International Users and Manufacturers Group e.V. www. can-cia.org
CANopen	CAN in AUTOMATION - International Users and Manufacturers Group e.V. www.can-cia.org
EPLAN	EPLAN Software & Service GmbH & Co. KG www.eplan.de
CODESYS	CODESYS Group / CODESYS GmbH www.codesys. com
INBUS	INBUS Tool Ltd. www.inbus.de

2. For Your Safety

2.1 General Safety Instructions

ATTENTION

Damage to the module, impairment of electrical safety

Damage or impairment of electrical safety may occur due to overcurrent, welding beads and contamination from welding work.

- ➔ Welding work on the chassis frame may only be carried out by qualified personnel.
- ➔ Remove and cover the positive and negative terminals of the batteries.
- ➔ Disconnect the module with all contacts from the on-board power supply before welding on the vehicle or on the system.
- ➔ Connect the ground clamp of the welding device directly to the part to be welded.
- ➔ Do not touch the module and electrical lines with the welding electrode or the ground terminal of the welding device.
- ➔ Protect the module, including all connection plugs and all connection lines, against welding beads and other contaminants.

General notes

- The module described is installed as a subcomponent in a system. The safety of this system is the responsibility of the creator. The system manufacturer is obliged to carry out a risk assessment, and from this to prepare and enclose documentation in accordance with the legal and normative requirements for the operator and the user of the system. This must contain all necessary information and safety instructions for the operator, user and, if applicable, service personnel authorized by the system manufacturer.
- Read this document before putting the product into operation and keep it for the duration of use.
- The product must be suitable without restriction for the applications and environmental conditions concerned.
- Only use the product as intended. See chapter 2.4 Intended use
- Failure to observe application instructions or technical specifications may result in damage to property and/or personal injury.

General notes

- In case of malfunction of the module, contact the manufacturer. Interventions in the module are not permitted.
- Effectively protect modules, connectors and cables from damage.
- Replace damaged modules, otherwise the properties and safety will be impaired.
- Only use system accessories and cables that comply with the requirements and regulations for safety, electromagnetic compatibility and, if applicable, transmission specifications. The installation of other accessories may violate these requirements and regulations or damage the system. For information on permissible system extensions and cables, contact your Data Panel sales partner or refer to this manual.

2.2 Qualified Personnel (Target Group)

Maker

The first step is always the hardest. But once you have started as a technophile mechanical engineer*, you will quickly get to know and appreciate the advantages of our xtremeDB modules. With the help of this manual, you will go from being the doer of today to the doer of tomorrow. Successfully make your machine state of the art and passionately optimize your project. Even the biggest projects start with a first step.

*** Qualified knowledge**

For a better understanding of the contents in this document and for the safe planning and setup of your machine, qualified knowledge in the following areas is required:

- Electrician
- Safety standards for mobile industrial machines
- Automation technology

This expertise is not provided in this document. Please ensure that you have the necessary qualifications or provide specialist personnel.

Areas

Give this manual to all employees involved with

- Planning
- Mounting
- Installation
- Configuration
- Commissioning
- Maintenance and testing

of the modules.

Get inspired by our innovative xtremeDB modules and start designing today!

2.3 Protective Measures for the Operator

Note:

- The relevant safety and accident prevention regulations
- The aforementioned EC directives or other country-specific regulations
- Generally recognized safety rules

ATTENTION

Module defect

The module can be damaged by improper interventions in the hardware and software.

➔ Only qualified personnel of Data Panel GmbH may intervene in the module.

➔ Only access the module yourself as described in the manual.

Avoid accidents caused by electrical voltage!

⚠ **WARNING!**

Possible high electrical voltage in the machine / plant

Death and serious injury due to electric shock can be the result.

➔ When working on the machine/modules, observe the 5 safety rules of electrical engineering according to DIN VDE 0105-100.

The 5 safety rules

Protect from high electrical voltage:

1 | Unlock

2 | Secure against restarting

3 | Determine the absence of voltage at all poles

4 | Ground and short circuit

5 | Cover or fence off adjacent live parts

Only then carry out installation or maintenance work.

Avoid personal injury and material damage due to malfunctions!

- Provide for external fuse circuits.
- The module must not exceed or fall below the specified tolerances.

Avoid undefined states!

- Select and install connecting cables in such a way that capacitive and inductive interference does not impair the system.
- Secure the module against misuse and accidental use.

2.4 Intended Use

Usage

The xtremeDB modules are designed and manufactured for:

- Communication and process control
- General control and automation tasks
- Industrial use
- Use in mobile industrial machines
- Operation within the environmental conditions specified in the technical data
- Operation only with fully assembled housing

Predictable misuse

The module is **not** approved for use:

- in potentially explosive atmospheres (EX zone)
- in safety applications

The module is **not** a safety component according to the Machinery Directive 2006/42/EC and is unsuitable for use in safety-related tasks. Use in the sense of personal protection is not in accordance with the intended purpose and is not permitted.

2.5 Warranty and Liability Claims

Warranty and liability claims are lost if:

- the product is not used as intended
- damage is due to the fact that the manual and operating instructions have not been observed
- the staff was/is not knowledgeable

2.6 Legal Requirements

National / international legal requirements

When placed on the market, the product complies with the state of scientific, technological, and recognized safety regulations. In addition to the operating instructions, the operation of the product is subject to the laws, regulations and directives of the country in which it is operated. The operator is responsible for compliance with these obligations:

- Applicable laws, guidelines and regulations
- Relevant accident prevention regulations
- Generally recognized safety rules
- EU directives and other country-specific regulations

3. Description

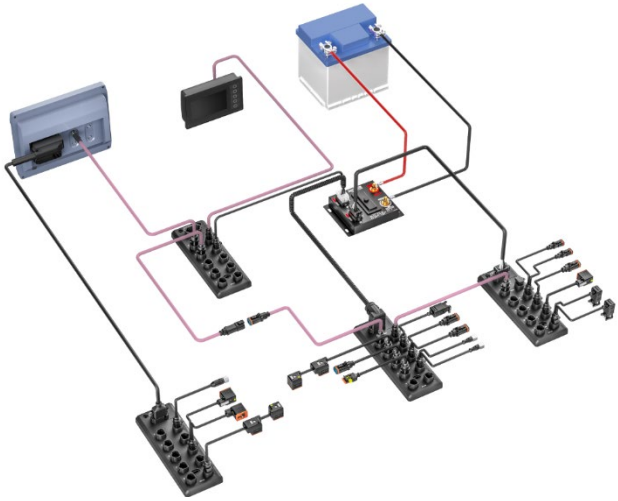
3.1 Contemporary Wiring of Mobile Machines

From cable harnesses and terminal boxes

Using cable harnesses and terminal boxes is standard practice when wiring a mobile machine today. In recent years, however, more and more electronic technologies have found their way into these machines with a multitude of additionally required modules, sensors and actuators. However, these electrical installation initiatives have increased wiring efforts considerably, bringing the existing wiring solutions to their limits. The consequences are ungainly terminal boxes or excessive cable harnesses that can't be accommodated justifiably, high time expenditure in production, and an increased probability of errors.

For the end user, the available solutions cause failures due to poor tightness and robustness, and errors are difficult to find and subsequently often difficult or impossible to fix.

Contemporary wiring



A way out of this scenario is offered by Data Panel GmbH with a portfolio of high-quality, decentralized, electromechanical installation solutions in the form of a precisely coordinated, modular and pluggable system kit. This wiring variant is particularly interesting for special machines, because even for the smallest batch sizes, there is now finally a professional, robust and, in terms of overall costs, economical solution available. However, series machines also benefit from a modularly designed, pluggable extension level on the standardized wiring harness, with which option management, customer requests and future function extensions can now be handled easily in practice.

3.2 The Modules of the xtremeDB Series - CANopen

Active CANopen fieldbus modules

Active CANopen fieldbus modules with proven DT connection technology form the center of the I/O installation systems. The robust xtremeDB modules offer 8 slots for up to 16 input or output signals and can be parameterized individually. Sensor signals can be read in digital, analog, ratiometric or as frequency/counter. Outputs are available digitally or as PWM, PWM(i). Smaller machines with pure display control can be easily equipped with full-fledged I/Os using xtremeDB modules.

Outputs for driving actuators

Up to 52 A module current capacity in four separate actuator circuits, protected against reverse polarity, can be individually fused and centrally wired. The outputs can each drive up to 4 A, and two digital outputs per module can also be loaded with up to 10 A. Modules offer short-circuit protection, overload protection and extensive diagnostics via LED and CAN BUS.

CAN BUS addressing and module replacement

Addressing and baud rate selection are performed via jumpers in the 18-pin DT central connector. The advantage of this method: When the module is replaced, the setting remains within the installation. A replacement module is immediately ready for use after plugging in, no lengthy setting or parameterization via PC required.

CAN BUS distribution

The xtremeDB modules are equipped with two combined CAN and sensor supply ports, which allows easy expandability. Data Panel also offers solutions for a star-shaped CAN distribution.

A decentralized installation solution for mobile machines

- "Shrinks" wire harnesses and terminal boxes.
- Can be mounted easily, quickly and without errors.
- Is matched to our modular and pluggable system kit.
- Is easily adaptable to application-specific requirements.
- Can be wired with little installation effort using prefabricated connection cables or alternative connection via single wires.
- Has a high robustness against aggressive media such as diesel, hydraulic oil, cleaning agents etc. due to a reinforced plastic housing.
- Offers high space savings due to compact dimensions.

3.3 Overview of Product Variants

Item no.	Inputs / outputs (IO's)	OUT (DO) Current for actuators	Connections
DP-34044-1-200	8 IN (DI, AI, Ratiom., Freq., Count., Enc.), 8 OUT (DO, PWM, PWM(i))	4 A per DO; ∑ all DO's on the module max. 26 A	8x DT 4-pin (IO), 2x DT 4-pin (CAN BUS), 1x DT 18-pin (Power, Config.)
DP-34044-2-200	16 IN (DI, AI, Ratiom., Freq., Count., Enc.)	-	
DP-34044-3-200	16 OUT (DO, PWM, PWM(i))	4 A per DO and 2 DO's 10 A; ∑ all DO's on the module max. 52 A	
DP-34044-5-200	16 OUT (DO)	4 A per DO and 2 DO's 10 A; ∑ all DO's on the module max. 52 A	

Tab. 1: Overview of product variants

Item no. DP-34044-1-200, xtremeDB, CANopen 8 inputs (DI, AI, Ratio., Freq., Count., Enc.) and 8 outputs (DO, PWM, PWM(i))

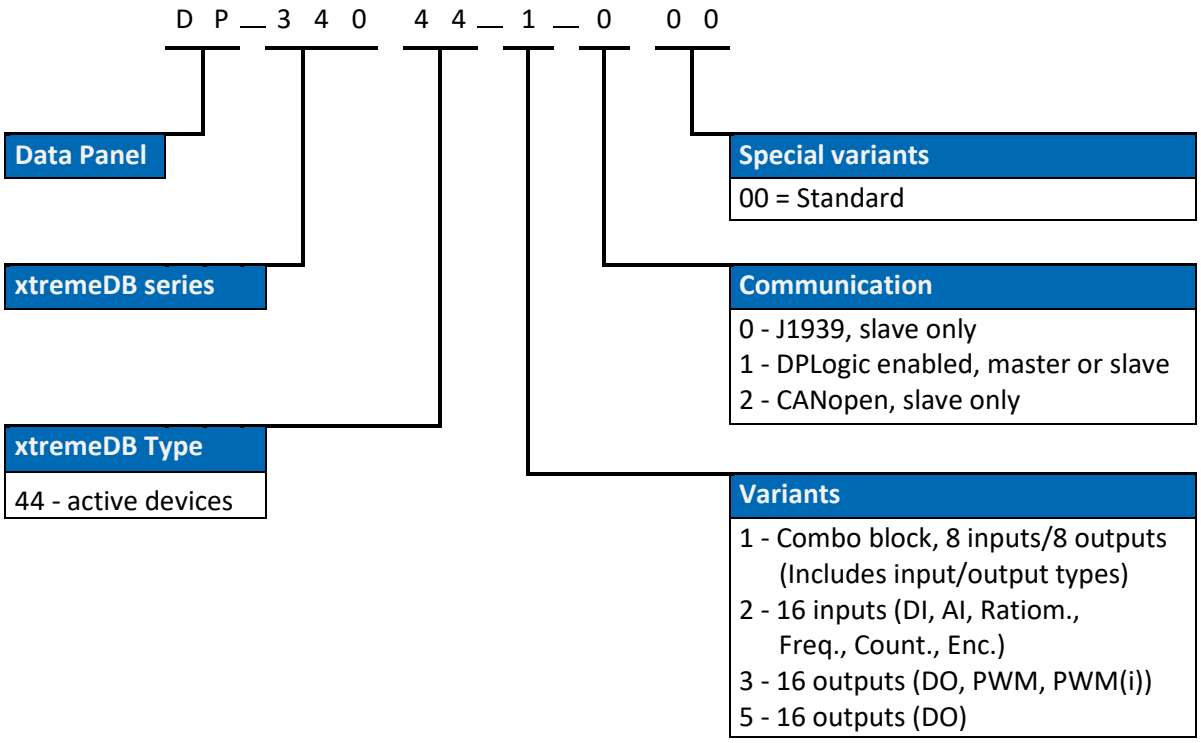
The xtremeDB -1 (pronounced "dash one") CANopen module combines many different IO signal configurations. It offers a total of eight inputs, up to four of which can be used as analog inputs, measuring current or voltage, or as ratiometric inputs. Two of the digital inputs can also be configured as frequency inputs or counters. At the same time, the module provides eight outputs, which can also be individually configured as digital, "DO" signals or PWM or current-controlled PWM(i) outputs. The module can drive up to 26 A output current.

Item no. DP-34044-2-200, xtremeDB, CANopen 16 inputs (DI, AI, Ratio., Freq., Count., Enc.)

The CANopen -2 (pronounced: "dash two") input module offers a total of sixteen inputs, up to eight of which can be used as analog inputs, measuring current or voltage, or as ratiometric inputs. Eight additional inputs can be configured as digital plus (PNP) or minus (NPN) switching inputs. Two of these digital inputs can also be configured as frequency inputs or counters.

Item no. DP-34044-3-200, xtremeDB, CANopen, 16 outputs (DO, PWM, PWM(i))	The CANopen -3 (pronounced: "dash three") output module provides sixteen outputs, which can be configured individually as digital "DO" signals or alternatively e.g. as two DO (high power) and fourteen PWM(i) (pulse width modulated, current controlled). Two DO outputs can be loaded up to 10 A and the remaining fourteen outputs with 4 A each. The temporary total current of the -3 module is 52 A.
Item no. DP-34044-5-200, xtremeDB, CANopen, 16 outputs (DO)	The CANopen -5 (pronounced: "dash five") output module offers sixteen purely digital outputs. Two DO outputs can be loaded up to 10 A. This makes it ideal for switching lights on and off, for example. The temporary total current of the -5 module is 52 A.

3.4 Item Number Structure



Example:	**Item no.**	**Name**
	DP-34044-1-200	xDB0808-DIO CANOPEN (xtremeDB 8 inputs to 8 outputs, CANopen)

3.5 Maximum Expansion

RECOMMENDATION

To determine and plan the maximum possible I/O points and I/O types on modules of the xtremeDB series, you can also use our configurator on the Data Panel website. See description in chapter: 3.8 AI configurator for xtremeDB activeIOmodules (Web Page) and Configurator at www.data-panel.eu/configurator

Framework

The maximum possible system expansion depends on various factors that influence each other. The following are a few key figures:

Key figures on the maximum expansion

- Cable lengths: max. 30 m (98.4 ft)
- Modules of the xtremeDB series as CAN BUS participants per CAN network: max.
  16 pieces
- General CAN BUS nodes per CAN network: ∑ max. 127 pieces

Concrete description of the framework conditions for maximum expansion

For the most accurate system planning, see the following chapters:

- 7 Electrical Install
- 9.3.2 CAN Node ID (address)

3.6 Scope of Delivery

NOTE

The accessories are not included in the scope of delivery. Suitable accessories are available at http://www.data-panel.eu on the respective product pages under "xtremeDB bus module accessories".

3.7 Download Material on Our Website

Important downloads

Related documents, data sheet, EDS files, REACH and RoHS information, planning aids and other content are available on our website.

➔ See the tab "Downloads / Legal Info." under the product at www.data-panel.eu

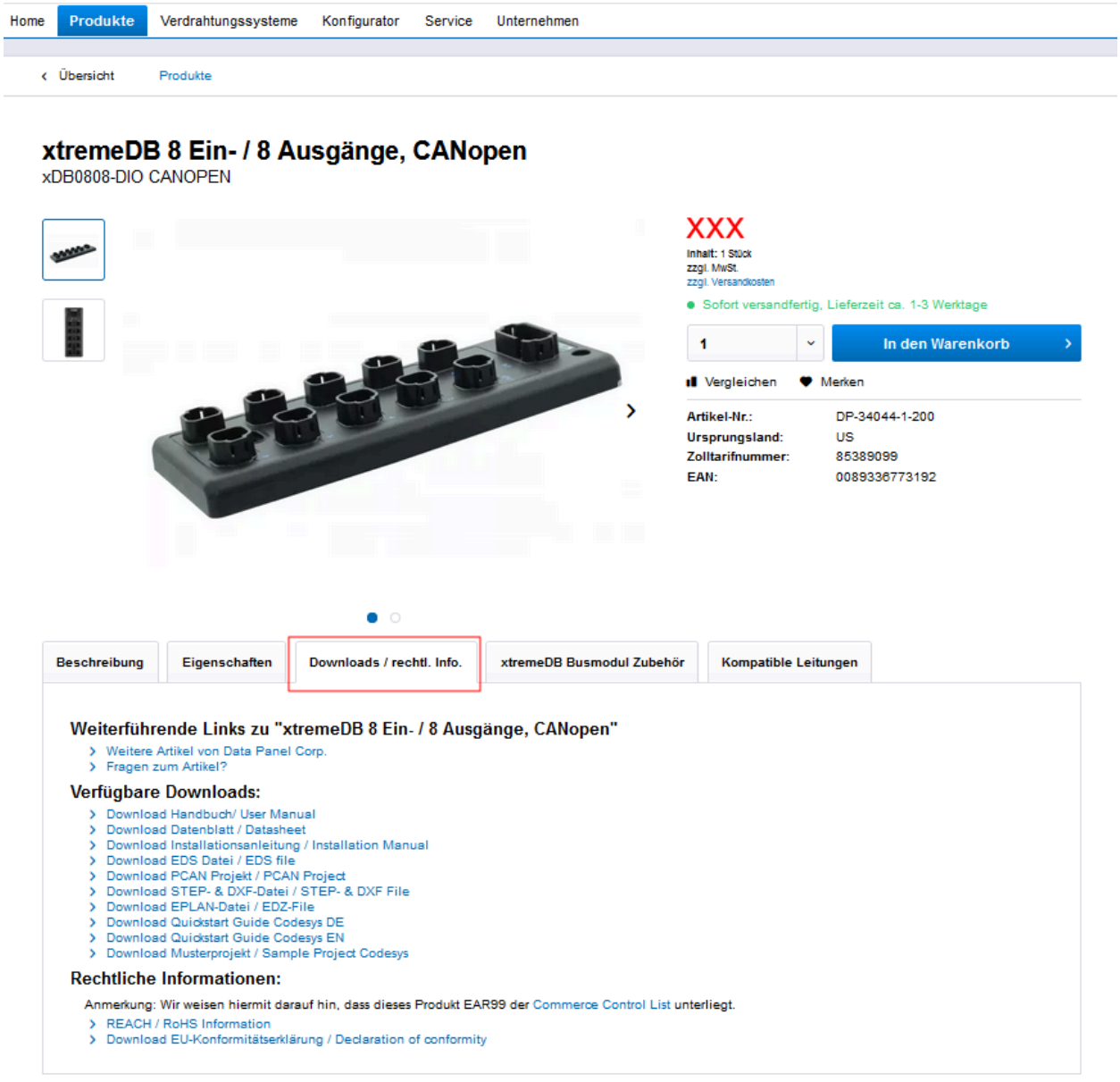


Abb. 1: Important downloads

3.8 AI Configurator for xtremeDB Active IO Modules

Support with the compilation of the necessary modules

An AI-supported 3D product configurator can be found at data-panel.eu/configurator. All the planner has to do is enter the number of input and output signal types required for the application, and the AI then optimizes the most cost-effective solution from a material point of view, or, alternatively, for maximum use of common parts. The signal distribution on the modules themselves is also taken into account.

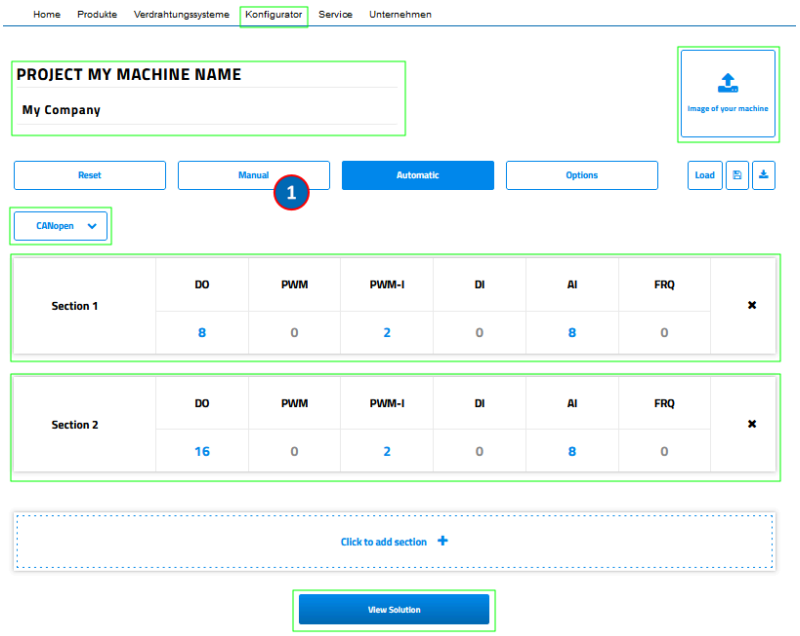
NOTE

In order to access all functions, user registration on our website is necessary.

Functions and advantages

- Listing of module variants and number
- Specification "most cost-effective solution" or “maximum number of identical parts”
- Technical device tags of the block can be added in the configuration
- Sections can be defined
- Upload your own machine images
- Saving and downloading configurations
- FREE!

Start your Configuration:



1 | Unlock "Manual" mode to determine modules and signals on your own (without AI support)

Abb. 2: Home page of the configurator for xtremeDB active I/O modules

Example of the determined module variants, number of modules and additionally available I/O signals

➔ By selecting a module, you see the overview and configuration of the I/O signals.

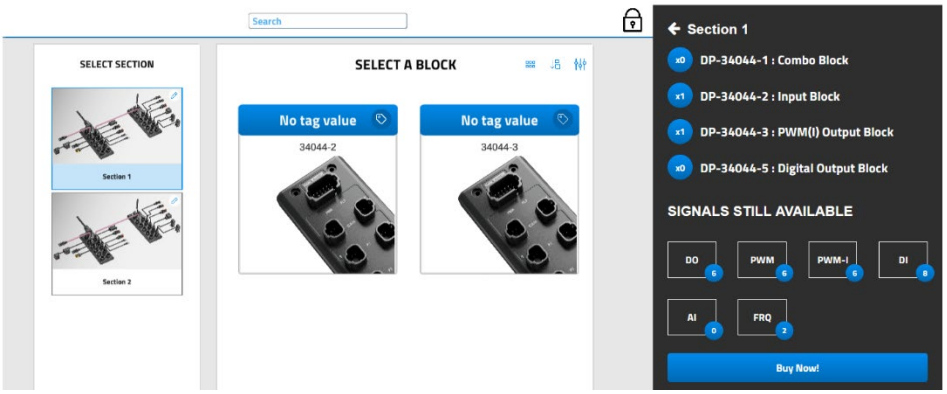
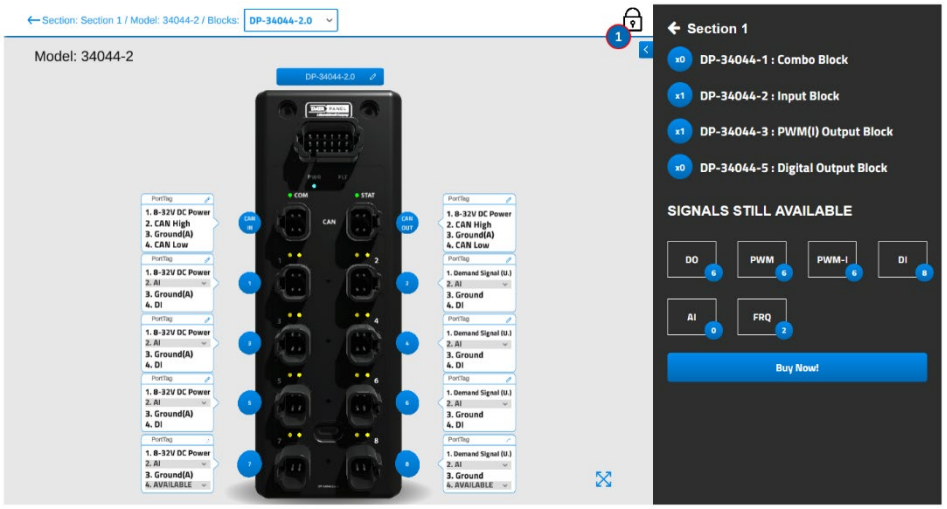


Abb. 3: Example solution configurator

Overview and configuration of the I/O signals of the selected module

➔ If required, the I/O signals can be relocated, and channels that are still available can be assigned additional functions.



1 | Unlock "Manual" mode to determine modules and signals on your own (without AI support)

Abb. 4: Example module I/O signals configurator

➔ Scroll to the top of the web page and select the Save button to save your project.

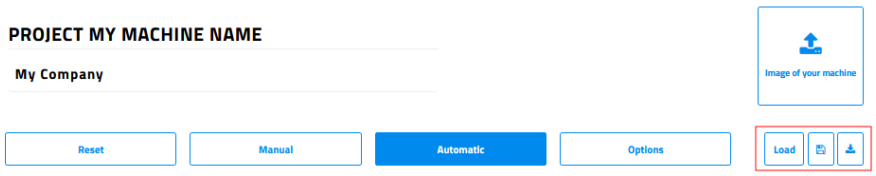


Abb. 5: Save configuration

3.9 Components in the Modular System

Discover our portfolio of high-quality, decentralized electromechanical installation solutions in the form of a precisely coordinated, modular and pluggable system kit.

3.9.1 Components in Our Online Store

Link to the online store www.data-panel.eu

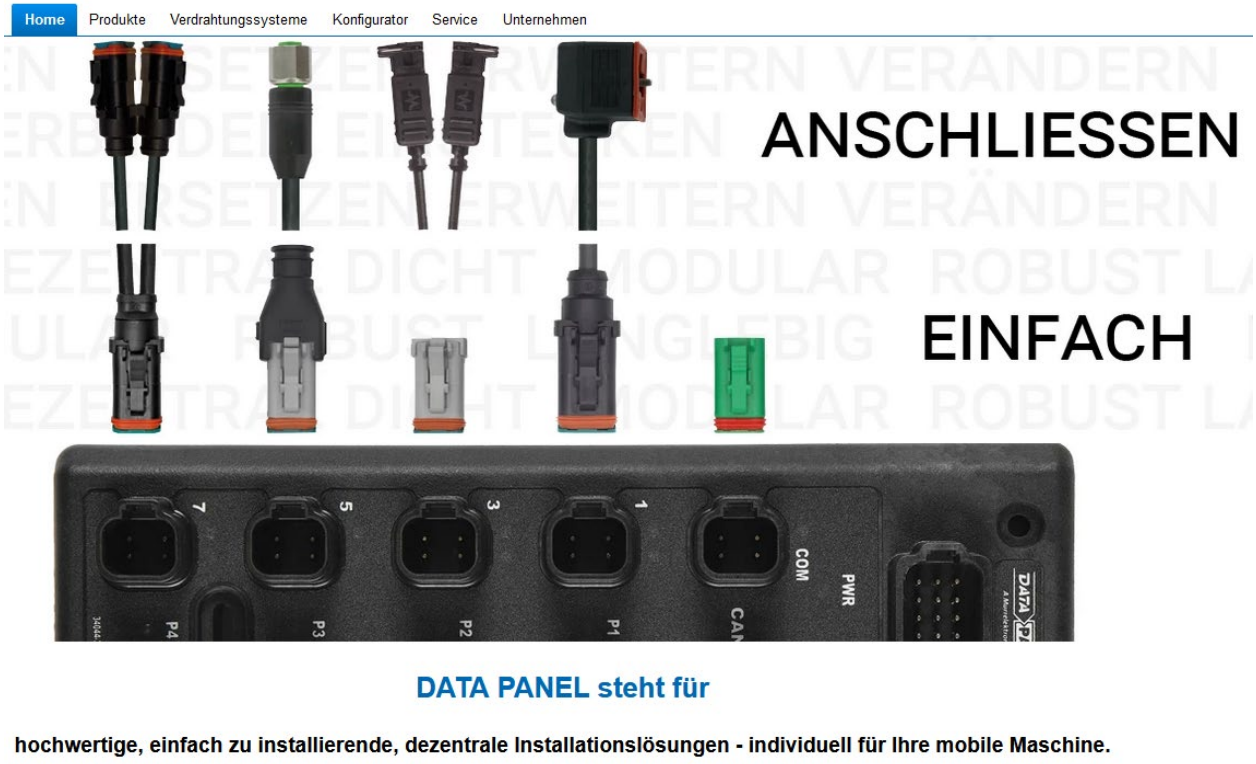


Abb. 6: Home page from online store

Components and simplified ordering The following pages give a small insight into our online store in terms of component location. Online ordering is quick and easy by design, and direct delivery is equally fast.

NOTE

➔ For fast delivery, the checkmark should be activated for **"immediately available".**
(see next page)

Find your specific product solution

- Clear and detailed filter functions or product selectors to quickly find the products you need.
- Tailored to your technical requirements for Data Panel products.
- No matter the category, connection type, size or signal type, with a few clicks you are at your destination!

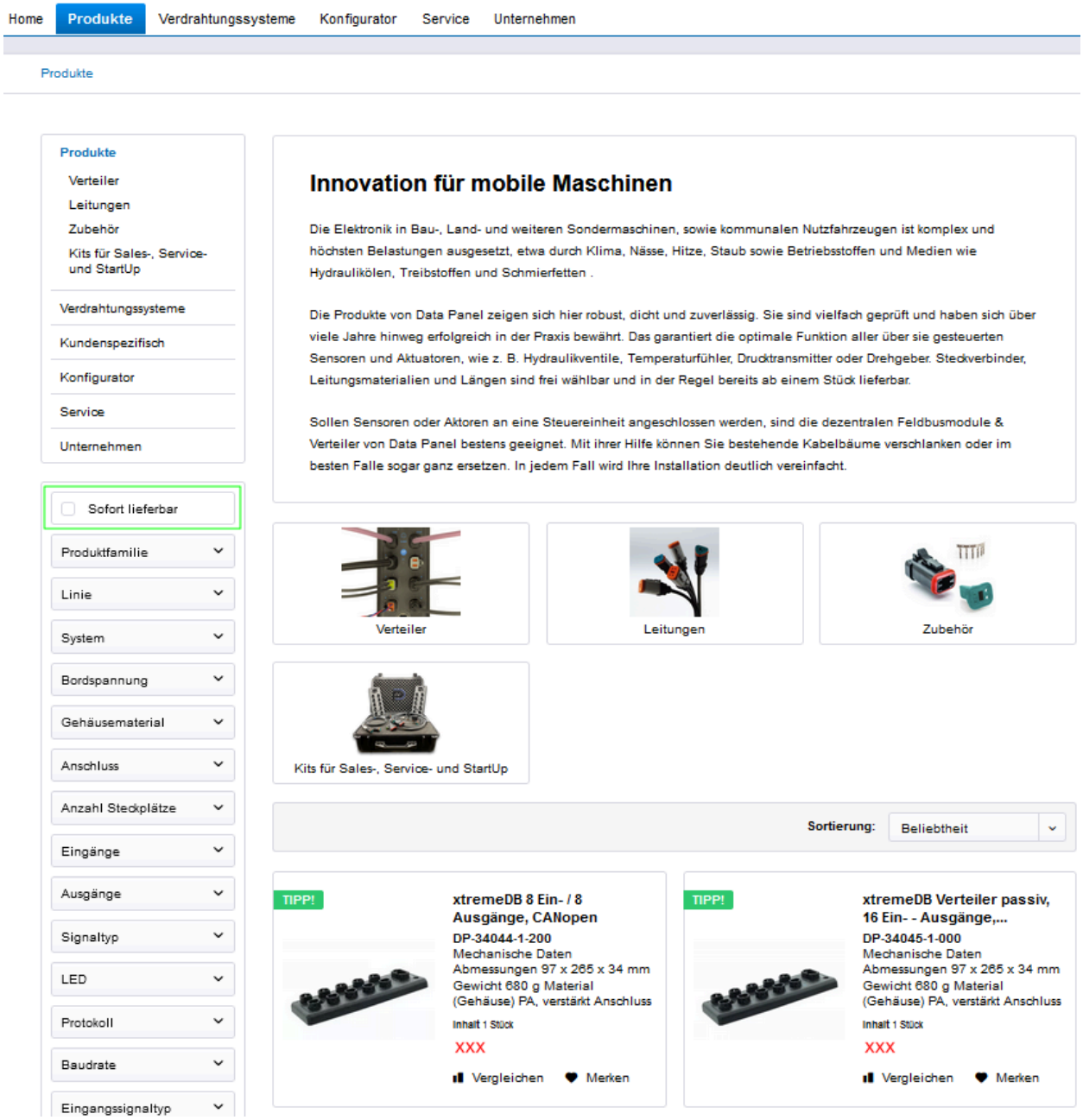


Abb. 7: System construction kit in the online store

Matching products And components- goodbye research!

In our online store, research for matching products is no longer necessary - our intelligent functions show them to you automatically.

Find matching wires, cables and other required components simply by selecting the accessories tab. Complete your order faster than ever before.

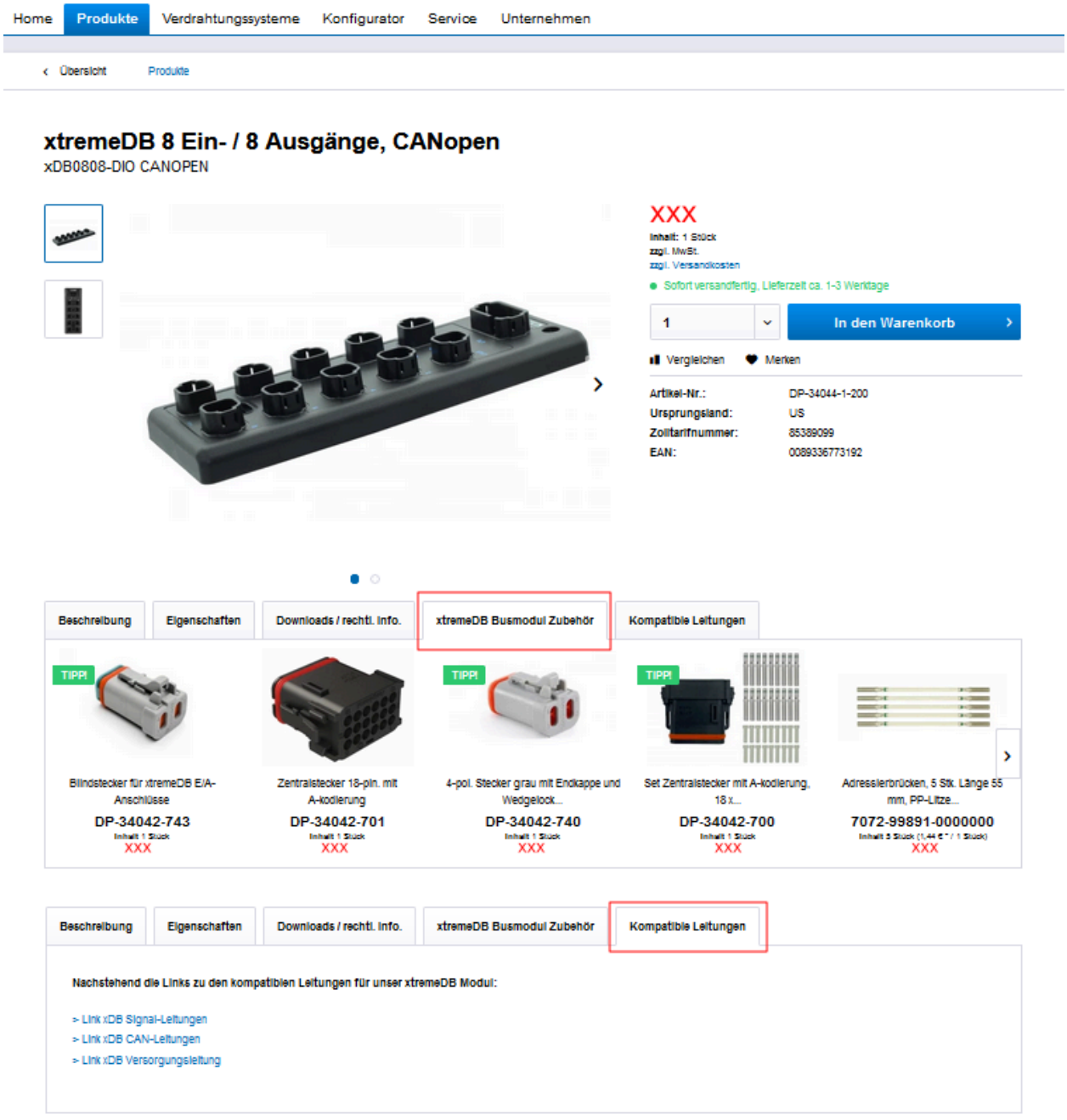


Abb. 8: Matching products and accessories in the online store

3.9.2 Active I/O

xtremeDB active (I/O Module)

The connection between controllers and sensors/actuators is typically made via cable harnesses and terminal boxes. The controllers used have few, but high-pole connection plugs. There are also clear limits to the expandability and adaptability of the mobile machine with conventional installation systems.

DATA PANEL xtremeDB modules replace control cabinets and terminal boxes and reduce the wiring harness to a minimum. The xtremeDB modules are media, temperature and vibration resistant and have been used successfully for years in a wide range of different applications in special mobile machines. The xtremeDB installation system simplifies the planning, installation and serviceability of machines immensely.

➘ xtremeDB active products at www.data-panel.eu

To determine and plan the maximum possible I/O points and I/O types on modules of the xtremeDB series, you can also use our configurator on the Data Panel Web Page:

➘ Configurator at www.data-panel.eu/configurator

3.9.3 Products to Distribute CAN BUS

CAN BUS distributor

When connecting several CAN nodes to a classic line topology, the usual installation technology quickly reaches its limits. Especially if the bus nodes or CAN sensors have only one plug-in connection, a clean installation is not possible.

With the robust and waterproof CAN distributors from Data Panel, this problem can be solved and a star topology can be implemented easily. With the pre-assembled, tested and optionally shielded connection cables and distribution systems, a high-quality CAN installation can be set up in the shortest possible time that meets any requirement. As a result, end customers also benefit in the form of simple, subsequent expandability as well as the shortest possible downtimes and repair times.

➘ CAN BUS distributor on www.data-panel.eu

3.9.4 Passive Modules

xtremeDB passive

The passive xtremeDB distributors are perfectly suited to lead up to 16 inputs/outputs into the field by means of the DT plug-in technology. The signal status is displayed by means of LEDs, depending on the variant. The passive distributors can be integrated into single-core cable harnesses or equipped with a pre-assembled sheathed trunk cable. They thus act as a link between the industrial and automotive installation worlds. Any necessary transport separation can be easily implemented at the central connection without any additional costs. The housing material of all distributors is a reinforced plastic that is completely encapsulated and thus offers the highest protection classes up to IP69K, with excellent media resistance and the wide temperature range survivability of -40 °C to +80 °C that is customary in the industry.

➘ xtremeDB passive products at www.data-panel.eu

3.9.5 Cables

xtreme connection lines

With such robust modules, using the matching connection cables is strongly recommended. The ultrasonically welded and fully encapsulated or TPU-molded xtreme connection cables offer an abrasion-resistant, oil- and UV-resistant full PUR jacket and are the choice when permanent high-pressure cleaning resistance or highly flexible installation, e.g. on booms, is required.

With these cables, the active and passive IO modules meet the standards according to IP65, IP66K, IP67, IP68 and IP69K ratings. Alternatively, you can assemble the cable yourself using DT or compatible connectors. The modular system of pre-assembled and tested components and the extensive range of accessories make you largely independent when wiring sensors and actuators.

➘ xtreme connection lines at www.data-panel.eu

3.9.6 Accessories

NOTE

Suitable product accessories can be found on our website at: www.data-panel.eu directly on the product page under the tab "Accessories".

Central connector 18-pin. with A-coding

Item no.: DP-34042-701

www.data-panel.eu/dp-34042-701

DT Dummy plug, normal diameter (pack of 10)

Item no.: DP-34042-795

http://www.data-panel.eu/dp-34042-795

Set of central plugs with A-coding, 18 x contacts + 18 blind plugs

Item no.: DP-34042-700

www.data-panel.eu/dp-34042-700

Addressing bridges, 5 pcs. Length 55 mm, PP strand white

Artikel-Nr.: 7072-99891-0000000

www.data-panel.eu/7072-99891-0000000

CAN terminating resistor, 120 Ohm, DT 4-pin

Item no.: DP-34042-747

www.data-panel.eu/dp-34042-747

Dummy plug for xtremeDB IO connectors

Item no.: DP-34042-743

www.data-panel.eu/dp-34042-743

4-pin connector gray, with end cap and wedgelock for single strands

Item no.: DP-34042-740

www.data-panel.eu/dp-34042-740

DT Dummy plug, normal diameter (pack of 10)

Item no.: DP-34042-795

http://www.data-panel.eu/dp-34042-795

4-pin connector with reduced sealing diameter and wedgelock

Item no.: DP-34042-749

www.data-panel.eu/dp-34042-749

DT Blanking plug diameter (reduced seal) (pack of 10)

Item no.: DP-34042-796

www.data-panel.eu/dp-34042-796

Blank cover for connecting cables AT06-4S

Item no.: DP-34042-744

www.data-panel.eu/dp-34042-744

Dummy cover for connecting cables DT16-18SA

Item no.: DP-34042-704

www.data-panel.eu/dp-34042-704

4. Technical Data

NOTE

The detailed product data sheets can be found on our website or in the online store:

➔ See the tab "Downloads / Legal Info.“ under the product at http://www.data-panel.eu

4.1 Art. DP-34044-1, -2, -3, -5 Mechanical Data

Property	Value
Dimensions	97 x 265 x 35 mm
Weight	680 g
Material (housing)	PA, reinforced
Connection CAN sensor / module supply	DT-4
Actuator supply connection	DT-18 (A-cod.)
Connection IOs	DT-4

Tab. 2: Art. DP-34044-1, DP-34044-2, DP-34044-3, DP-34044-5 Mechanical data

4.2 Art. DP-34044-1 Electrical Data

Property	Value
Operating voltage	8 ... 32 V DC
Operating current per pin (max.)	13 A
Total current (max.)	26 A
Protective device supply	Reverse polarity protection
Module diagnoses	Undervoltage Overvoltage Overtemperature
LED indicators	Power: blue BUS: green Status: green Actuator potential: blue Signal: yellow Fault: red

Tab. 3: Art. DP-34044-1 Electrical Data

4.3 Art. DP-34044-2 Electrical Data

Property	Value
Operating voltage	8 ... 32 V DC
Operating current per pin (max.)	13 A
Total current (max.)	13 A
Protective device supply	Reverse polarity protection
Module diagnoses	Undervoltage Overvoltage Overtemperature
LED indicators	Power: blue BUS: green Status: green Signal: yellow Fault: red

Tab. 4: Art. DP-34044-2 Electrical Data

4.4 Art. DP-34044-3, -5 Electrical Data

Property	Value
Operating voltage	8 ... 32 V DC
Operating current per pin (max.)	13 A
Total current (max.)	52 A
Protective device supply	Reverse polarity protection
Module diagnoses	Undervoltage Overvoltage Overtemperature
LED indicators	Power: blue BUS: green Status: green Actuator potential: blue Signal: yellow Fault: red

Tab. 5: DP-34044-3, DP-34044-5 Electrical Data

4.5 Art. DP-34044-1 Input Data

Property	Value
Total number of inputs	8
Number of digital inputs DI	8
Number of analog inputs AI	4
Range analog value	4...20 mA | 0...5 V / 0...10 V / 0...32 V
Number of frequency inputs FRQ	2
Frequency range	10...3.000 Hz
Input diagnoses	Undervoltage Overvoltage Short circuit of sensor supply

Tab. 6: Art. DP-34044-1 Input Data

4.6 Art. DP-34044-2 Input Data

Property	Value
Total number of inputs	16
Number of digital inputs DI	16
Number of analog inputs AI	8
Range analog value	4...20 mA | 0...5 V / 0...10 V / 0...32 V
Number of frequency inputs FRQ	2
Frequency range	10...3.000 Hz
Input diagnoses	Undervoltage Overvoltage Short circuit

Tab. 7: Art. DP-34044-2 Input Data

4.7 Art. DP-34044-1 Output Data

Property	Value
Total number of outputs	8
Number of digital outputs DO	8
DO Output current max.	4 A
Number of PWM outputs	8
PWM output current max.	4 A
Number of PWM(i) outputs	8
PWM(i) Output current max.	4 A
Protective device outputs	Overload | Short circuit
Initial diagnoses	Current value Overcurrent Short circuit

Tab. 8: Art. DP-34044-1 Output Data

4.8 Art. DP-34044-3 Output Data

Property	Value
Total number of outputs	16
Number of digital outputs DO	16
DO Output current max.	2x 10 A | 14x 4 A
Number of PWM outputs	8
PWM output current max.	4 A
Number of PWM(i) outputs	8
PWM(i) Output current max.	4 A
Protective device outputs	Overload | Short circuit
Initial diagnoses	Current value Overcurrent Short circuit

Tab. 9: Art. DP-34044-3 Output Data

4.9 Art. DP-34044-5 Output Data

Property	Value
Total number of outputs	16
Number of digital outputs DO	16
DO Output current max.	2x 10 A | 14x 4 A
Protective device outputs	Overload | Short circuit
Initial diagnoses	Current value Overcurrent Short circuit

Tab. 10: Art. DP-34044-5 Output data

4.10 Art. DP-34044-1, -2, -3, -5 Ambient Conditions

Property	Value
Protection class	IP67 | IP68, IP69k (with MDC connection cables)
Ambient temperature	-40 °C...+80 °C
Storage temperature	-40 °C...+85 °C

Tab. 11: Art. DP-34044-1, DP-34044-2, DP-34044-3, DP-34044-5 Ambient conditions

4.11 Art. DP-34044-1, -2, -3, -5 Standards & Approvals

Property	Value
EMC	EN 61000-6-2IEC/EN 61000-6-3EN 61000-6-4ISO 13766-1ISO 13766-2

Tab. 12: Art. DP-34044-1, DP-34044-2, DP-34044-3, DP-34044-5 Standards & Approvals

5. Plan and Prepare

NOTE

The following information cannot account for 100% of your planning considerations since these depend on several basic conditions.

➔ Use this information to begin the planning process

➔ Check whether this manual is to be included in your records

5.1 Planning Aids

5.1.1 Components

Active
Passive
Distribution
Connection

Find an overview of the required components in the following chapter:

3.9 Components in the Modular System

5.1.2 Downloadable Planning Aids

Downloads

Related documents, data sheets, EDS files, REACH and RoHS information, planning aids and other content are available for you on our website or in the online store:

➔ See the tab "Downloads / Legal Info.“ under the product at http://www.data-panel.eu

5.1.3 AI Configurator for xtremeDB Active I/O Modules

System planning simplified

Use our intelligent configurator to start your planning quickly and easily.

You can get an insight in chapter: 3.8 AI configurator for xtremeDB active I/O modules

And at data-panel.eu/configurator is our AI-powered 3D product configurator.

5.1.4 Configurator for Connection Cables

RECOMMENDATION

To preset the offset for module Node ID -1, we offer configurable connection cables:

- "DP-18-4 Configurator" for Art. No. DP-34044-1:

www.data-panel.eu/dp-18-4

- "DP-18-8 Configurator" for Art. No. DP-34044-3, DP-34044-5:

www.data-panel.eu/dp-18-8

Several options are available for pre-configurable connection cables:

➔ Via the "Addressing" dial, you select your offset and we set the jumpers and plugs

Preconfigurable connection cable with offset for Module Node ID-1

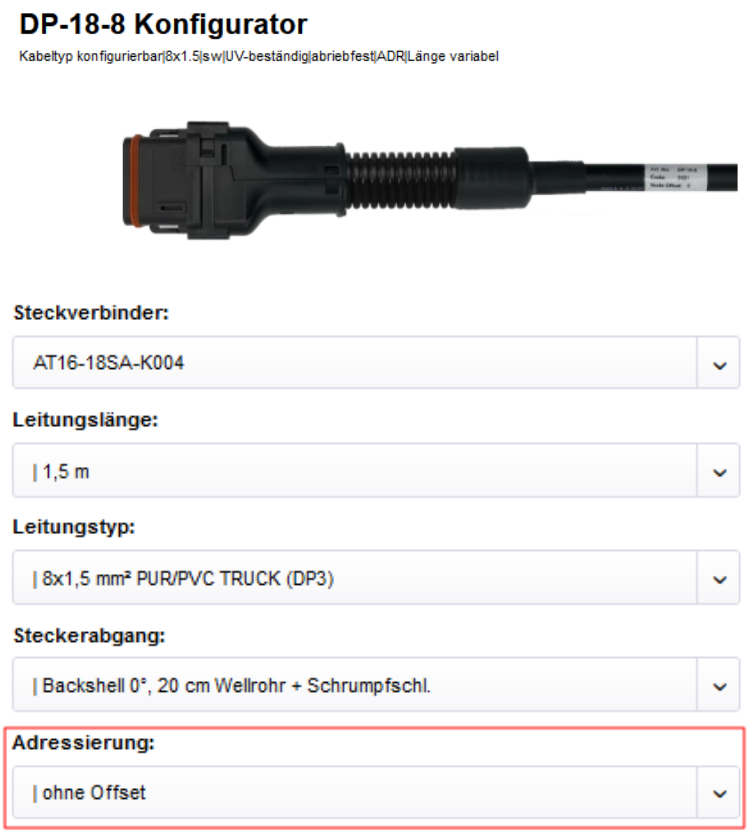


Abb. 9: Preconfigurable connection line with offset for module NodeID-1

5.1.5 EPLAN File (Macro) for the xtremeDB Modules

RECOMMENDATION

- Use the respective EPLAN file (macro) while creating schematics for xtremeDB modules to save time when using EPLAN engineering software
- Each EPLAN file (macro) is additionally accompanied by a PDF description in the languages DE and EN
- These files are available in our online store under the tab "Downloads / Legal Info." on each product page, or via the following links:

  https://www.data-panel.eu/media/archive/DP-34044-1-xxx_EPLAN.zip

  https://www.data-panel.eu/media/archive/DP-34044-2-xxx_EPLAN.zip

  https://www.data-panel.eu/media/archive/DP-34044-3-xxx_EPLAN.zip

  https://www.data-panel.eu/media/archive/DP-34044-5-xxx_EPLAN.zip

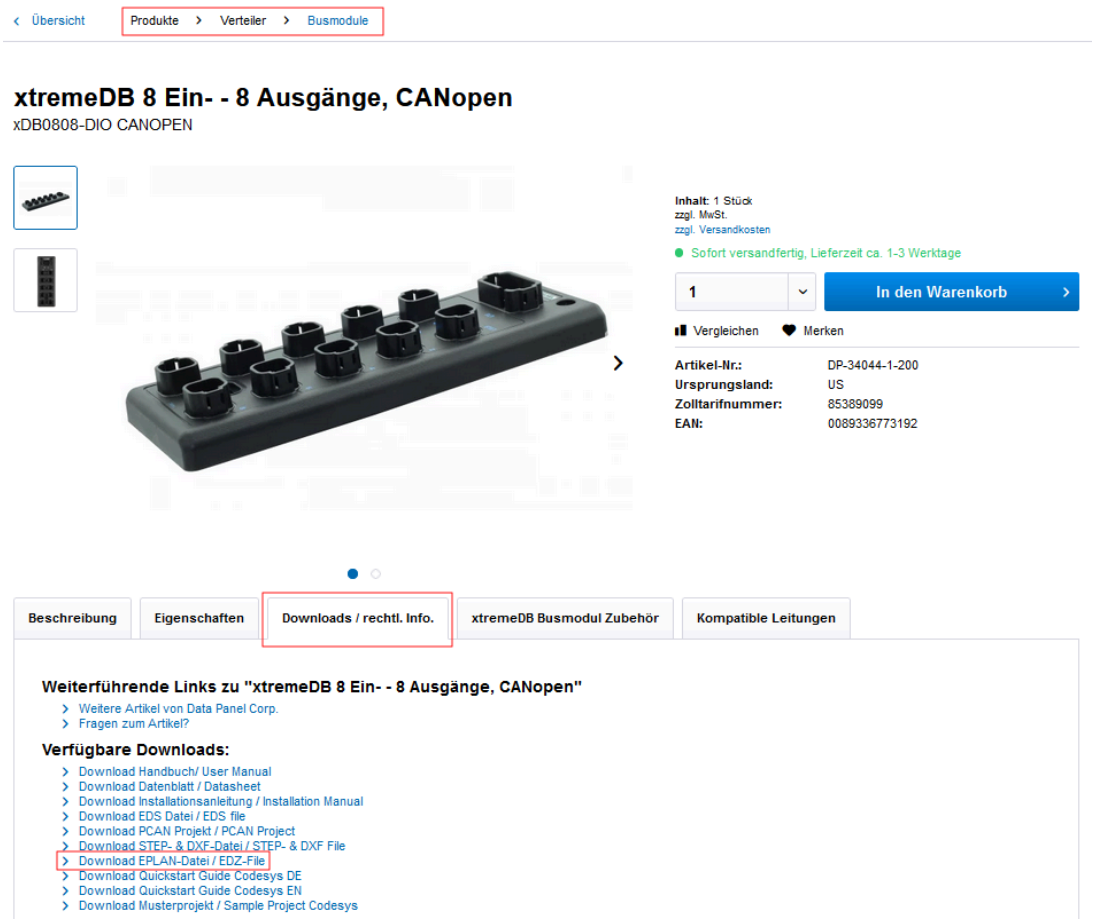


Abb. 10: EPLAN file (macro) for the xtremeDB modules

5.1.6 EPLAN xDB Sample Project

RECOMMENDATION

- Use our EPLAN xDB sample project to save time while creating schematics with EPLAN engineering software

  The EPLAN xDB sample project contains high quality EPLAN macros and sample circuits around our xtremeDB module family

- Can be purchased in our online store under products/accessories/planning files or via the following link: https://www.data-panel.eu/dp-eplan01

See also: Chapter 7. Electrical Install

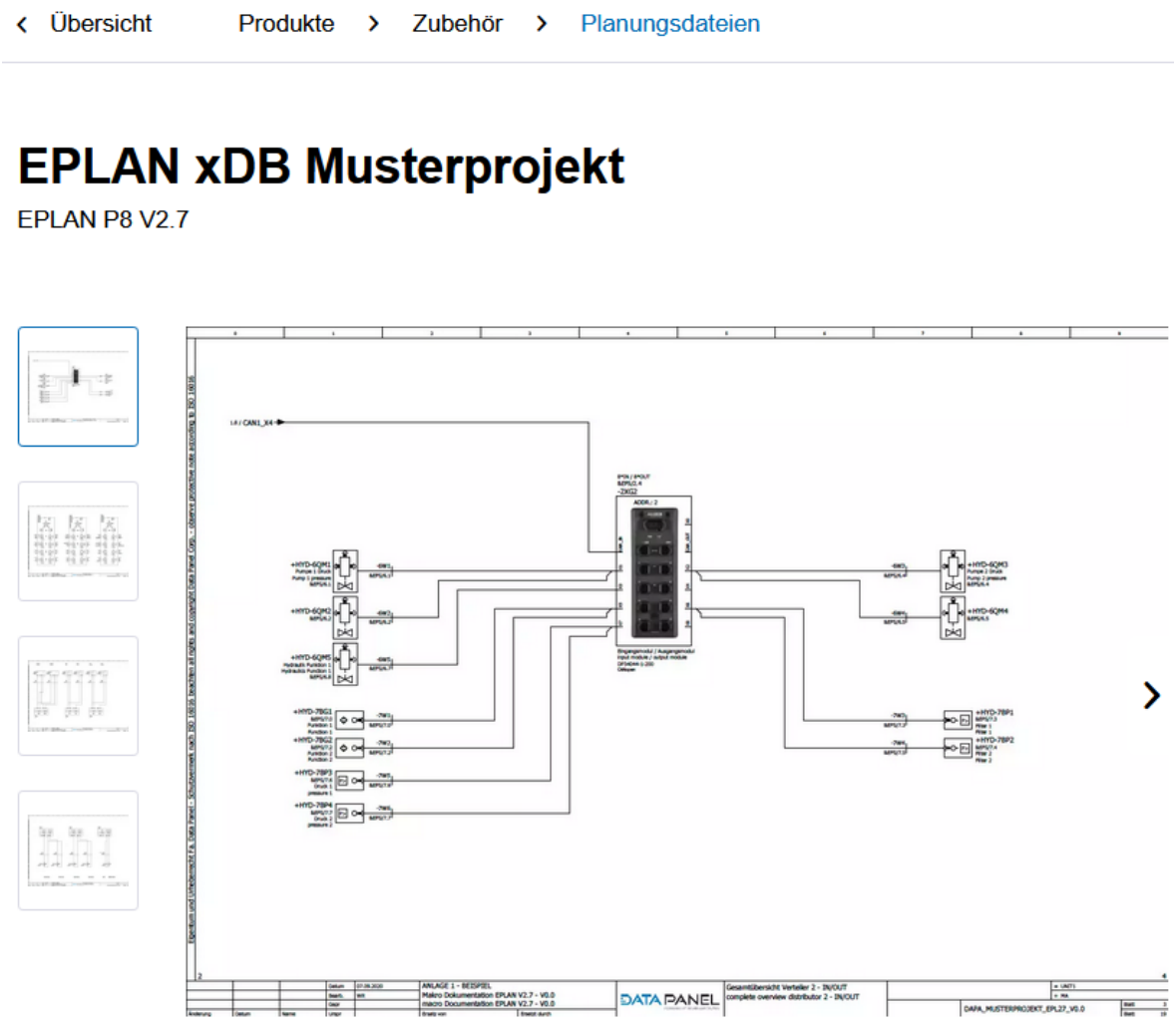


Abb. 11: EPLAN xDB sample project

5.1.7 Quick Start Guide with Starter Kit

RECOMMENDATION

As a commissioning start-up aid, a Quickstart Guide is provided using the example of a CODESYS user software environment with a CODESYS sample project:

➔ See the product "xtremeDB DP-34044-1-200 CANopen" in our online store and see the tab underneath the product, "Downloads / Legal Info." www.data-panel.eu/dp-34044-1-200

Additionally, we offer the matching "xtremeDB StarterKit 01" and CODESYS sample project:

➔ See online store "xtremeDB StarterKit 01" www.data-panel.eu/dp-sk01

See also: Chapter 8 Initial Operation "How To Use

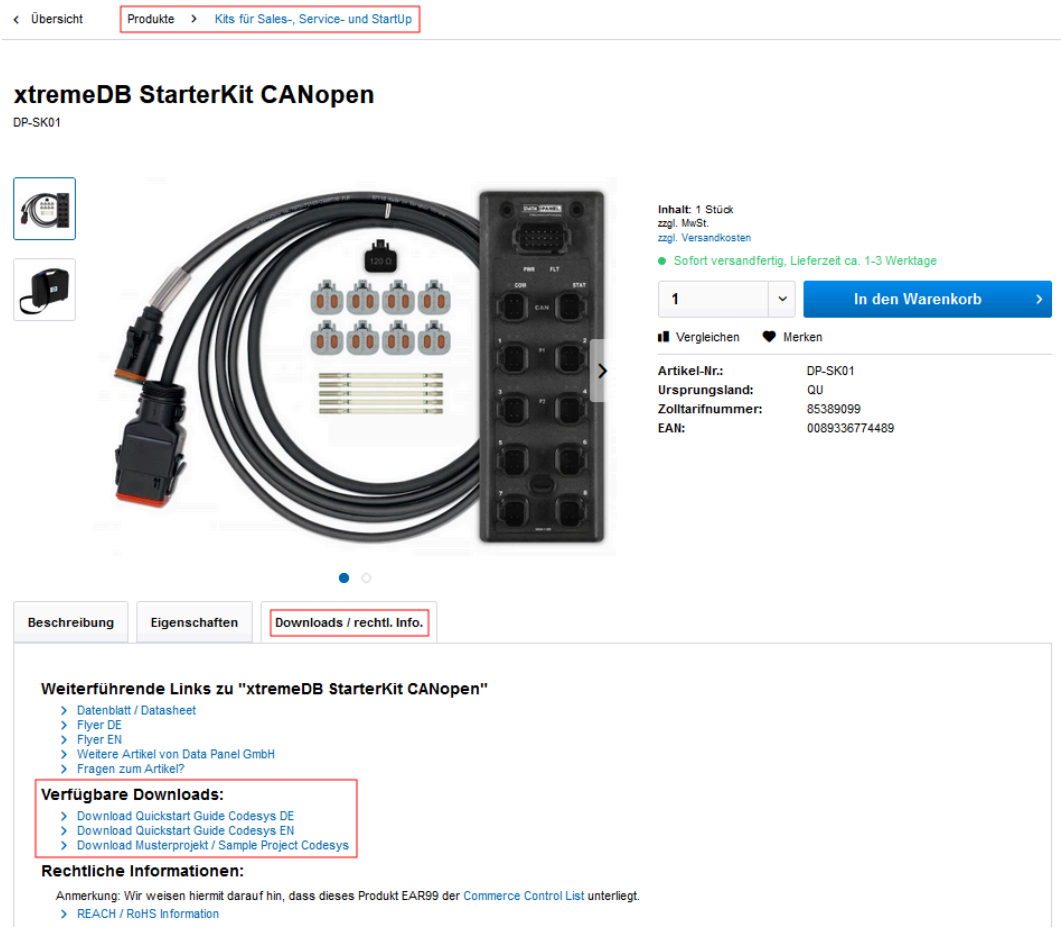


Abb. 12: xtremeDB StarterKit 01

5.2 Planning Tips for the xtremeDB Beginner

Simple to start safely

To make the system start-up even easier and safer, we recommend a procedure based on the following table:

Work phase	Question	Note
Plan	At which installation locations are I/Os required?	The answer to this question influences the number of modules required and their properties.
Plan	How many inputs and outputs are required in total?	From this is derived whether one or more CANopen networks are required for system realization.
Plan	How much power does the system require?	This informs the selection of a suitable system power supply unit.
Plan	What is the total extent of the system?	Important for the selection of the CAN BUS line and the data rates.
Plan (Software planning)	How should the node IDs be assigned to the modules?	To avoid assignment errors, configured modules must be planned and labeled carefully.
Plan	Where should the modules be mounted?	Streamline the system by placing modules with protection classes IP67, IP68, or IP69k as close as possible to sensors and actuators.
Procure the components	What modules, cables and accessories are needed?	A parts list can be imported from our online store at: www.data-panel.eu
Commissioning	How is system configuration performed?	With correct software, the modules can be configured via the read-in EDS file.
Commissioning	Have all CAN BUS nodes reported to the BUS after switching on the voltage?	When all CAN BUS stations have reported, the slave configuration can be started.
Commissioning	How can a simple I/O function test be performed?	Commissioning tools such as the CANopen master simulator can perform these tests, as well as via control software.
Diagnosis, validation and acceptance protocol	How can the system be instituted safely and without errors?	Activate and check all useful diagnostic functions and log the I/Os and diagnostic functions. Create an acceptance protocol.

Tab. 13: Planning tips for the beginner

5.3 Storage and Transport

Storage

ATTENTION

Possible oxidation of the contacts

To avoid oxidation of the contacts:

➔ Store in a dry place with low humidity

When storing the module, also observe the environmental conditions in the "Product Data Sheets".

NOTE

Detailed product data sheets can be found on our website or in the online store:

➔ See the "Downloads / Legal Info.“ tab under the product at http://www.data-panel.eu

Transportation and Packing

To protect against impact and shock, the device must be transported in its original packaging or in suitable protective packaging.

If the packaging is damaged, check the module for visible damage and immediately inform the carrier and Data Panel staff of any transport damage. In the case of damage or after a fall, use of the module is prohibited.

5.4 Descriptions of the CAN BUS

5.4.1 CAN BUS Protocol

Communication profile (general)

CAN (Controller Area Network) was originally developed solely for the exchange of information within a motor vehicle. It is intended to improve the shifting process by allowing the transmission to communicate a shift request to the engine management system via CAN. CAN was thus designed to exchange short messages under real-time conditions. This is also a typical task for machine control systems.

Application (general)

Today, CAN is established worldwide in a wide variety of applications. From automobiles to consumer products; safety-sensitive or high-demand industrial machines; systems such as robots and transport systems; medical technology with particularly high safety requirements.

Functionality CAN (general)

With CAN, control units, sensors and actuators, etc. are connected to each other via a serial BUS. The bus line itself is a balanced or unbalanced twisted-pair cable, which is shielded or unshielded depending on the requirements. The electrical parameters of the physical transmission are specified in ISO 11898.

PROS from CAN (general)

Thanks to its robust transmission physics, CAN is insensitive to high temperatures and interference fields. CAN is also characterized by particularly robust network behavior (Hamming distance = 6). In addition to the high transmission reliability, the low connection costs per subscriber are often a decisive argument in favor of CAN.

Identifier

In a CAN data transmission, messages contain the node source address except in the case of a broadcast message. These "addresses", also called identifiers, are unique network wide. In addition to the content identification, the identifier also determines the priority of the message. This is crucial for BUS allocation when several stations compete for bus access rights.

Arbitration

In order to be able to process all transmission requirements of a CAN network, while complying with the latency conditions at the lowest possible data rate, the CAN protocol must implement a bus allocation procedure (arbitration). This procedure guarantees that even simultaneous bus accesses by several nodes always result in a unique bus allocation. By means of the bitwise arbitration procedure (CSMA/CA procedure), via the identifiers of the messages waiting for transmission, any collision of several stations willing to transmit is unambiguously resolved, at the latest after 13 (standard format) or 33 bit times (extended format) of any bus access at any time. In contrast to the message-based arbitration of the CSMA/CD method, this non-destructive collision resolution ensures that in no case bus capacity is required without also transmitting payload information.
Even in situations of bus congestion, linking the bus access priority to the message content proves to be an advantageous system feature compared to existing CSMA/CD or token procedures: All accumulated transmission requests are processed in the order of importance for the overall system despite the insufficient bus transport capacity.

High system and configuration flexibility

The content-based addressing described above achieves a high degree of system and configuration flexibility. Nodes can be added to the existing CAN network easily without making software or hardware changes to the existing nodes if the new nodes are exclusively receivers. Since no physical destination addresses are prescribed for the individual components on the part of the data transmission protocol, the concept of modular electronics is supported, as is the possibility of multiple reception nodes (broad/multi-cast) and the synchronization of distributed processes.

5.4.2 CANopen Protocol

CANopen
the CiA
(CAN in Automation e. V.)

When implementing CAN-based distributed systems, one quickly encounters requirements that are not yet taken into account by the layer 1 and 2 protocols. The provision of an extended communication capability in the form of an application layer (layer 7), based on the layer 2 protocol and suitable for distributed systems, was the starting point for the specification of CAL (CAN Application Layer). CANopen was developed from a subset of CAL. By defining profiles, it is geared even more specifically for use in standard industrial components.
CANopen is a standard of the CiA (CAN in Automation e. V.)

Communication profile

The CANopen profile family is based on a so-called "communication profile", which specifies the underlying communication mechanisms and their description (DS301). The most important device types used in industrial automation technology, such as digital and analog input/output modules (DS401), drivers (DS402), operator interfaces (DSP403), controllers (DSP404), programmable controllers (DS405) or encoders (DS406), are described in "device profiles". The device profiles define the functionality of standard devices, by respective type. The basis of the profile family is aimed at manufacturer independence in the configurability of modules via the CAN BUS.

CANopen is a collection of profiles for CAN - based systems with the following Features:

Open, real-time data exchange without protocol means overhead management of a system that is modular and scalable with interoperable and interchangeable modules, compatible with standardized network configurations and supported by many international manufacturers. All module/device parameters, synchronization and cyclic and/or event-oriented process data traffic are accessible and make short system response times possible.

CANopen - Specifications

CANopen specifications are created by CiA and are accessible. Source codes for master and slave modules/devices are provided by various suppliers. Manufacturers who offer certified CANopen products on the market are typically members of CiA. Through active membership in the CiA, Data Panel has profound CANopen know-how for the development of components for this bus system.

CiA on the Internet at:

www.can-cia.org

5.4.3 CAN BUS Level

Bus level

dominant / recessive

With CAN, a distinction is made between the dominant and recessive bus levels. The dominant bus level overwrites the recessive one. If dominant and recessive bus levels are sent simultaneously from different bus nodes, the dominant level is set on the BUS. The recessive level can only be set if it is sent simultaneously by all BUS nodes. The recessive level has the logical value 1; the dominant has the logical value 0. If no node is transmitting, the bus level is recessive.

Output level differences

Each CAN BUS node must be able to provide the output level differences Vdiff = VCAN_H - VCAN_L shown in the following table. The transmitter output current must be at least 25 mA.

Name	Value
Dominant bus level	Vdiff ≥ 0.9 V
Recessive bus level	Vdiff = -0.5 V ... +0,5 V
VCAN_H dominant (nominal)	3,5 V
VCAN_L dominant (nominal)	1,5 V
BUS idle operation	VCAN_H = +2.5 VVCAN_L = +2.5 V

Tab. 14: CAN BUS level

5.4.4 General Information on CANopen

Object directory (Construction/Structure)

CANopen prescribes a basic functionality for each module. Further functions can be installed but must adhere to the specifications in the module and communication profile. The specification of the module properties is done in the object dictionary. The object dictionary is set up in the application area of the module. The structure of the object dictionary can be taken from the following table. In the area between 0x1000 and 0x1FFF are the data of the communication profile and between 0x6000 and 0x9FFF the data of the module profile.

Index	Object
0x0000	Not used
0x0001 - 0x001F	Static Data Types
0x0020 - 0x003F	Complex Data Types
0x0040 - 0x005F	Manufacturer-Specific Data Types
0x0060 - 0x025F	Device Profile-Specific Data Types
0x0260 - 0x0FFF	Reserved for further use
0x1000 - 0x1FFF	Communication Profile Area
0x2000 - 0x5FFF	Manufacturer-Specific Profile Area
0x6000 - 0x9FFF	Standardized Device Profile Area
0xA000 - 0xAFFF	Standardized Network Variable Area
0xB000 - 0xBFFF	Standardized System Variable Area
0xC000 - 0xFFFF	Reserved for further use

Tab. 15: Object dictionary (structure)

Use of index and subindex

Entries in the object dictionary can be accessed via the index, where the whole data structure is addressed.

The subindex can be used to select an element from the data structure.

See table with example addressing:

Index	Subindex	Description
0x6200	0	Number of entries (here 3)
	1	Output1A to Output4B (8)
	2	Output6A to Output8B (8)
	3	Input power for port 5 to port 8 (4)

Tab. 16: Use of index and subindex

Communication profile (General)	The communication profile is based on the services and protocols provided by CAL. It contains functions for distributed synchronous operations, provides a common time base and defines uniform error signaling. Application objects can be assigned to communication objects. The communication profile also defines system initialization. Four message types (objects) are distinguished in the CANopen communication model:
Communication profile Administration Messages	These messages include layer management (LMT), network management (NMT) and identifier assignment (DBT). They are implemented via CAL management services.
Communication profile Service Data Messages	The Service Data Objects (SDO) are used to read and write entries in the object dictionary of the modules. The SDOs are realized by CAL application services. Each CANopen module supports at least one SDO server.
Communication profile Process Data Messages	The transfer of Process Data Objects (PDO) is the fastest way to transfer data since the transfer takes place without an additional protocol. A distinction is made between synchronous and asynchronous transmission. The PDOs are realized by CAL application services.
Communication profile Pre-Defined Messages	There are three predefined communication objects. SYNC, Time Stamp and Emergency Object. The support of these objects is not mandatory. They are implemented via CAL application services.

Process data (PDO) Transmission types

CANopen offers a wide range of options for transmitting process data.
The PDO transmission types are explained in more detail below:

PDO transmission "Change of state" (asynchronous)

The "Change of State" is the change of an input value (event control). The data is sent immediately after a change on the BUS. The event control makes optimum use of the bus bandwidth, since the entire process image is not constantly transmitted, but only the change to it. At the same time, a short reaction time is achieved, since when an input value is changed, it is not necessary to wait for the next query by a master.
When selecting the "Change of State" PDO transmission, however, it must be taken into account that under certain circumstances many events may occur simultaneously and corresponding delay times may then occur until a relatively low priority PDO can be sent on the BUS. A constantly changing input with a high priority PDO may block the BUS ("babbling-idiot"), which must be prevented. For this reason, the event control for analog inputs is switched off by default according to the CANopen specification and must be activated via object 0x2001.

PDO transmission "Remote transmission request“

NOTE

Modules of the xtremeDB, CANopen series do not support this transmission type.

PDOs can also be polarized by data request telegrams (remote frames, RTR telegrams) by the master. In this way, the input process image can also be brought to the BUS without input change in the case of event-controlled inputs, such as a monitor or diagnostics module being added to the network during runtime.

Link to the Parameters: for commissioning

Chapter 10 Parameters

Chapter 8 Initial Operation "How To Use

6. Mount

6.1 Heat Dissipation

CAUTION!

Risk of burns

Due to an extremely heated housing.

➔ Ensure sufficient heat dissipation during installation.

➔ Measure maximum module heating in the application area. The housing temperature specified in the product data sheet must not be exceeded.

When reaching housing temperatures that are dangerous to persons:

➔ Protect housing against accidental contact.

➔ Visibly apply warning notices for hot surfaces on the module.

6.2 Mounting Position

The module can be mounted directly on an installation plate or on a machine. It has three mounting holes for this purpose.

ATTENTION

Damage due to mechanical forces and tensions

To avoid mechanical stress on the housing:

➔ Select a smooth and even mounting surface, or use suitable leveling elements.

➔ No torsional forces or mechanical loads may act on the housing.

6.3 Mounting Distances

Min. 3 mm (0.12 in)

to all sides

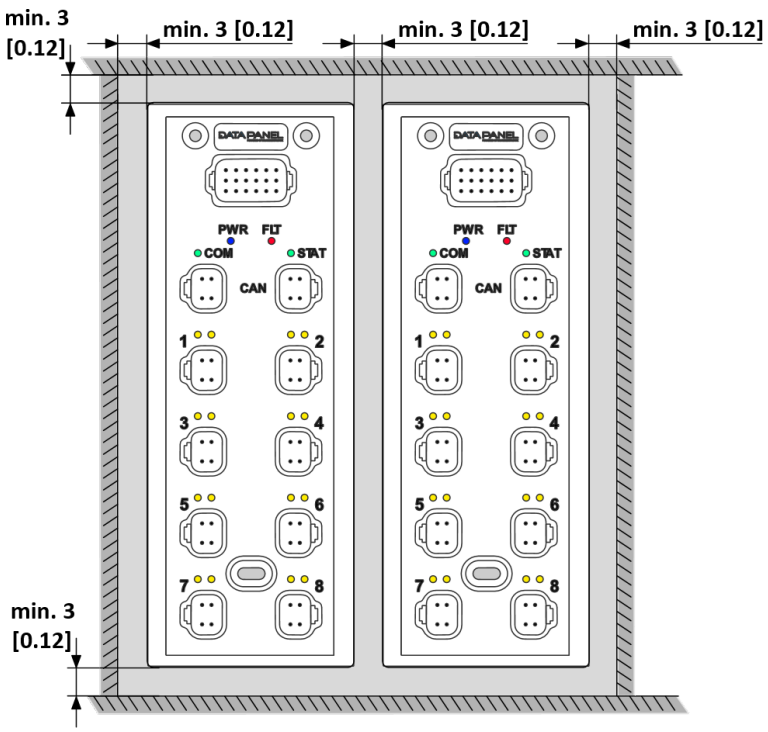


Abb. 13: Mounting distances min. 3 mm (0.12 in)

6.4 Seal

NOTE

Avoid contamination before and during installation until the protection rating is ensured by plugs or dummy plugs.

➔ To obtain the IP67, IP68, IP69k protection rating, you must follow chapter 7.3 IP67, IP68, IP69k protection rating

6.5 Assembly Data

Property	Value
Dimensions	97 x 265 x 35 mm
Weight	680 g
Material (housing)	PA, reinforced

Tab. 17: Assembly data

6.6 Dimensions and Mounting

NOTE

Tolerances in the dimensions may occur due to production.

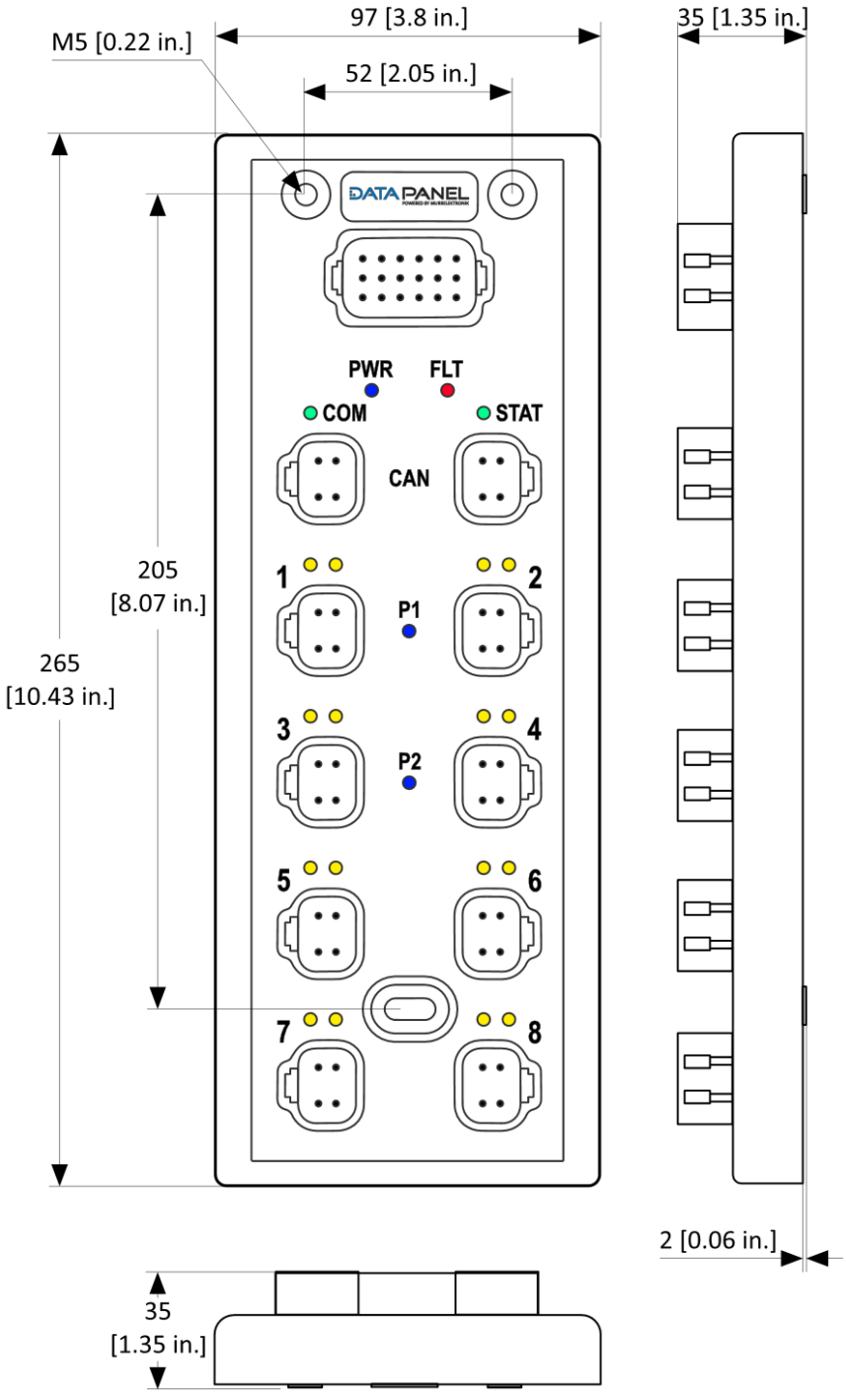


Abb. 14: Dimensions and mounting

6.7 Installation / Removal (Assembly / Disassembly)

Requirements

Create the following conditions for mounting the module:

➔ Assembly site in the immediate vicinity of the plant.

➔ Flat mounting surface for mechanically stress-free mounting.

➔ Short cable routes to all components.

➔ Sufficient space for easy module replacement and for connecting the plug-in connections.

➔ Suitable mounting location with regard to vibration and shock load, temperature based on the properties outlined in the product data sheets.

NOTE

Detailed product data sheets can be found on our website or in the online store:

➔ See the tab "Downloads / Legal Info.“ under the product at www.data-panel.eu

➔ Protect against the connection cables being torn off by personnel or a module.

➔ Diagnostic LEDs of the module should be visible during operation.

Protected installation

ATTENTION

Possible property damage

Due to improper use such as using the module as a climbing aid.

➔ Ensure protected installation.

Installation

ATTENTION

Risk of property damage

The fastening screws depend on the subsurface of the mounting location.

➔ Use screws according to the condition of the subsurface.

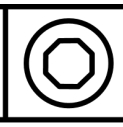
➔ Use M5 screws .

ISO 4762 cap screws with hexagonal sockets (INBUS) are recommended.

Hexagonal bolts cannot be used

➔ These M5 screws must be tightened to the following torque:

1,8 ... 2.2 Nm / max. 2.4 Nm (15.9 ... 19.5 lbf in / max. 21 lbf in)

M5		1,8 ... 2,2 Nm 15.9 ... 19.5 lbf in	

➔ Mount the module via the 3 mounting holes.

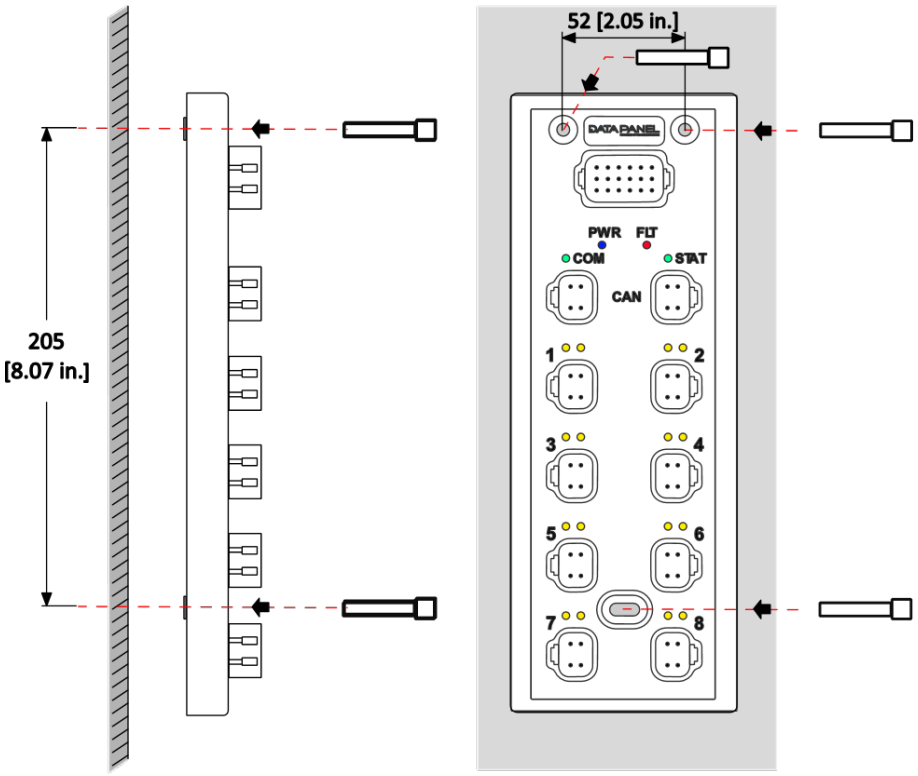


Abb. 15: Installation

Expansion

NOTE

➔ After dismantling, please observe chapter 9.8 Environmentally Compatible Disposal

7. Electrical Installation

7.1 Important Notes on Wiring

Avoid accidents caused by electrical voltage!

WARNING!

Possible high electrical voltage in the machine/plant

Death and serious injury due to electric shock can be the result of failing to follow warnings.

➔ When working on the machine/modules, observe the 5 safety rules of electrical engineering according to DIN VDE 0105-100.

The 5 safety rules

Protection from high electrical voltage:

1 | Unlock

2 | Secure against restarting

3 | Determine the absence of voltage at all poles

4 | Ground and short circuit

5 | Cover or fence off adjacent live parts.

Only then carry out installation or maintenance work.

Power supply SELV or PELV

WARNING!

Life-threatening tensions!

In the event of a defect in a power supply unit, life-threatening voltages higher than 120 V DC or higher than 50 V AC may be present at touchable parts.

➔ Only use power supplies that comply with SELV or PELV to remain below life-threatening voltage levels in the event of a fault.

Battery

WARNING!

Fire hazard possible

Insufficient or missing fuse protection of the battery can lead to a short circuit.

➔ Fuse the battery accordingly.

Ground (A) and Ground (B)

ATTENTION

Electrical disturbances

For proper and trouble-free operation:

- Ground module voltage and sensor supply at CAN PORT to Ground (A), according to chapter 7.6 Connection CAN
- Ground the port voltage (actuator supply) at the 18-pin central connector to Ground (B), according to chapter 7.5 Connection Configuration, Power (Output)

Supply voltage protection

NOTE

Reverse polarity protection is integrated for the supply voltage.

- Fuses must be installed to protect against overloads and short circuits. See chapter 7.7 Circuit Protection

Output Protection

NOTE

The outputs are protected against overload and short circuit.

Resetting an output error

To reset an output error, a module restart (voltage reset) is necessary. Unless the output reset in "Controller Mode" is activated. If the output reset is activated in "Controller Mode", the error is reset when the output is switched off. This may happen a maximum of 5 times before a module restart (voltage reset) is required. An output error has no effect on other outputs of the module.

"Controller Mode"

See Index 2000 Sub-Index 1 in chapter 10.1 CAN Module/Device Global Configuration

7.2 General Connection Procedure

Cable routing

For trouble-free operation of the system, the cable routing is an important criterion. Therefore, the following points should be observed when laying the cables:

1 | Do not run bus lines parallel to power lines; if necessary, run them in separate bundles or cable ducts.

2 | Avoid potential differences by laying equipotential bonding lines.

3 | Do not select signal and supply cables that are too short; avoid applying tensile forces on the cables and the module.

Prevention of interference voltage

Reduce or prevent interference voltages.

Interference suppression measures must be carried out on devices from which interference emanates (e.g. frequency converters, valves, contactors, etc.).

7.3 Protection Class IP67, IP68, IP69k

ATTENTION

Avoid malfunctions due to a leaking module

To obtain the protection ratings of IP67, IP68, IP69k:

➔ Close all unused connections with dummy plugs.

Seal all unused openings (single wire seal openings) with dummy plugs: Part No.: DP-34042-795 or DP-34042-796

➔ To achieve IP68 or IP69k, MDC cables are to be used.

Accessories

DT Dummy plug normal diameter (pack of 10)

Item no.: DP-34042-795

http://www.data-panel.eu/dp-34042-795

DT Dummy plug with reduced diameter (reduced seal) (PU 10 pcs.)

For connectors with reduced sealing diameter.

Item no.: DP-34042-796

www.data-panel.eu/dp-34042-796

Dummy plug for xtremeDB I/O connectors

Item no.: DP-34042-743

www.data-panel.eu/dp-34042-743

MDC cables can be found and filtered in our online store under Products > Cables:

xtreme connection cables at www.data-panel.eu

7.4 Overview of Supply/Energy Distribution

NOTE

- Observe the notes on connections and fusing in the following chapters.
- When determining the total current on the sensor supply (Us), it should be noted that this also supplies the internal module electronics.

  Internal module electronics consumption: approx. 120 mA per module

  See in the following figure: Sensor supply (Us) = "BUS and Us (sensor supply)".

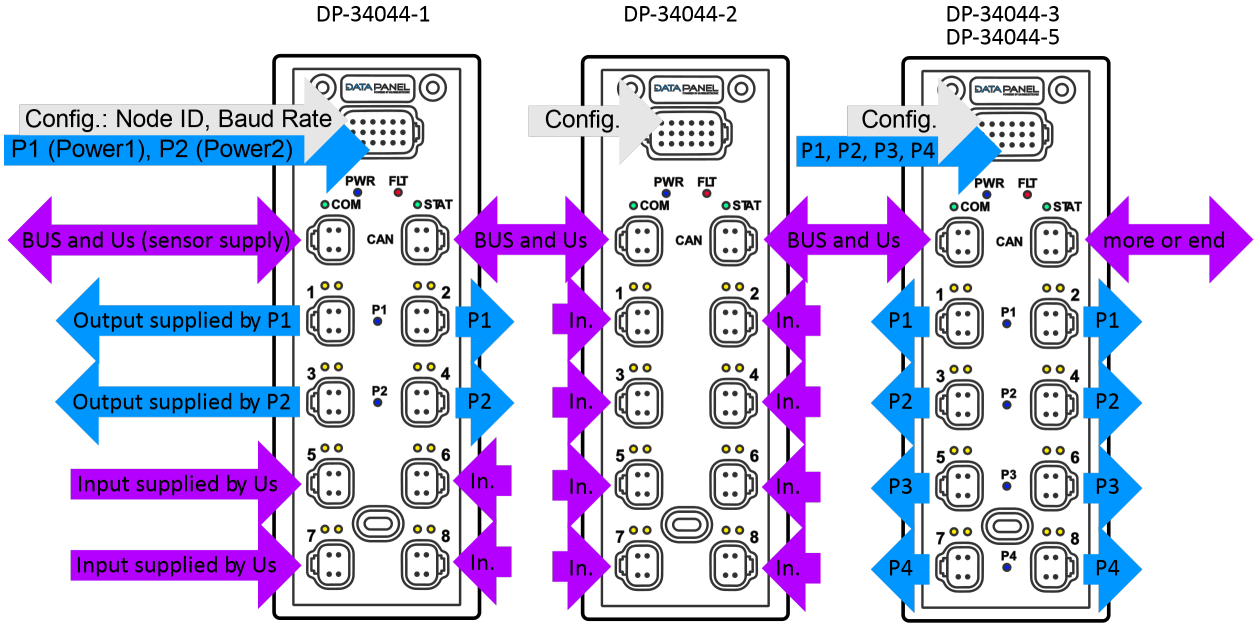


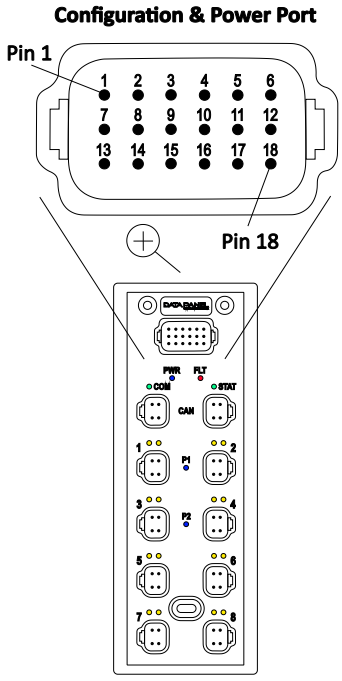
Abb. 16: Overview supply / energy distribution

7.5 Connection Configuration, Power (Output)

NOTE

- All power connections of the module must be supplied to receive power at all outputs.
- Install an external fuse for short-circuit protection for each supply circuit via the central connector (configuration, power port). (See chapter 7.7 Circuit Protection)
- Ground (B) = Each ground (B) pin must be wired individually to ensure the rated current. Each stranded wire must be designed for a current of min. 13 A. (1.5 mm² / AWG16)

18 pin
Connector AT16-18SA
or compatible



DP-34044-1xDB0808-DIO	
Configuration, Power Port	
Pin 1	Baud1-A
Pin 2	Config 1-A
Pin 3	Config 2-A
Pin 4	Config 3-A
Pin 5	Config 4-A
Pin 6	N/C
Pin 7	Baud1-B
Pin 8	Config 1-B
Pin 9	Config 2-B
Pin 10	Config 3-B
Pin 11	Config 4-B
Pin 12	N/C
Pin 13	Power 1 (P1)
Pin 14	Power 2 (P2)
Pin 15	N/C
Pin 16	Ground (B)
Pin 17	Ground (B)
Pin 18	N/C

DP-34044-2 xDB-16-ADI	
Configuration, Power Port	
Pin 1	Baud1-A
Pin 2	Config 1-A
Pin 3	Config 2-A
Pin 4	Config 3-A
Pin 5	Config 4-A
Pin 6	N/C
Pin 7	Baud1-B
Pin 8	Config 1-B
Pin 9	Config 2-B
Pin 10	Config 3-B
Pin 11	Config 4-B
Pin 12	N/C
Pin 13	N/C
Pin 14	N/C
Pin 15	N/C
Pin 16	N/C
Pin 17	N/C
Pin 18	N/C

DP-34044-3 xDB-16-PWM(i); DP-34044-5 xDB-16-DO	
Configuration, Power Port	
Pin 1	Baud1-A
Pin 2	Config 1-A
Pin 3	Config 2-A
Pin 4	Config 3-A
Pin 5	Config 4-A
Pin 6	Power 3 (P4)
Pin 7	Baud1-B
Pin 8	Config 1-B
Pin 9	Config 2-B
Pin 10	Config 3-B
Pin 11	Config 4-B
Pin 12	Ground (B)
Pin 13	Power 1 (P1)
Pin 14	Power 2 (P2)
Pin 15	Power 3 (P3)
Pin 16	Ground (B)
Pin 17	Ground (B)
Pin 18	Ground (B)

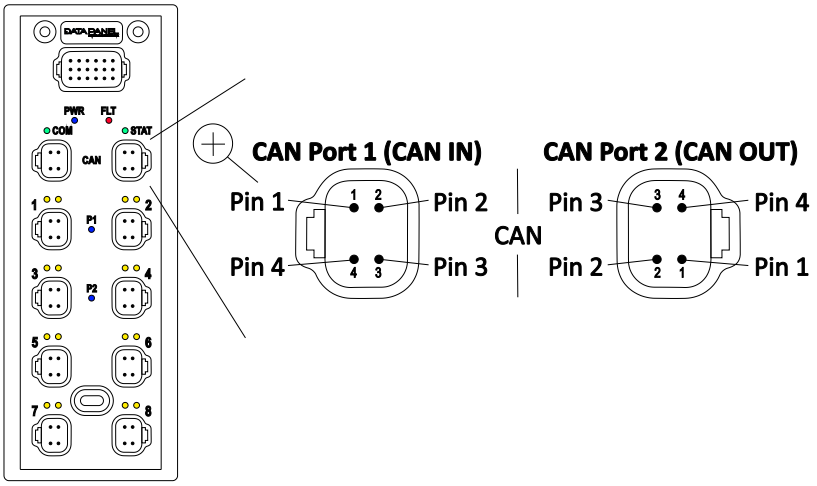
Abb. 17: Connection Configuration, Power

7.6 CAN Connection

NOTE

- Supply ∑ max. 13 A via CAN port 1 (CAN IN) or CAN port 2 (CAN OUT)
- Install external fuse for short-circuit protection for the supply via CAN port 1 (CAN IN). (See chapter 7.7 Circuit Protection)
- The sensors on the module (inputs) and the internal module electronics receive their current from the CAN port. Unused current can be looped through CAN port 2 (CAN OUT) or CAN port 1 (CAN IN) to supply other CAN BUS nodes.
- ∑ max. 8 A for sensor power (Us) at the I/O inputs together with the internal module electronics.
- Sensor power (Us) at the inputs must NOT be used to supply actuators (output modules).
- The CAN BUS network must be terminated with a **120 Ohm terminating resistor**.
- No galvanic isolation between CAN port 1 (CAN IN) and CAN port 2 (CAN OUT).
- The potential difference at the CAN ground connections of all CAN BUS nodes should not be greater than 2V.

4-pin connector "DT06-4S" or compatible



CAN Port 1 / CAN Port 2 (CAN IN / CAN OUT)	
Pin 1	Power 8 ... 32 V DC sensor supply (Us) and internal module electronics
Pin 2	CAN HIGH
Pin 3	Ground (A)
Pin 4	CAN LOW

Abb. 18: CAN connection

Accessories

CAN terminating resistor 120 Ohm (pin 2 to pin 4) DT 4-pin

Item no.: DP-34042-747

http://www.data-panel.eu/dp-34042-747

7.7 Circuit Protection

CAUTION!

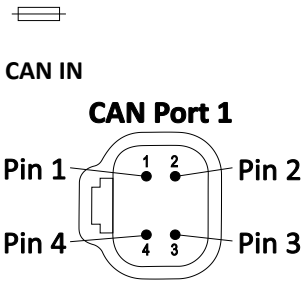
No integrated fire protection

Input current is not limited.

➔ To protect the entire system, fuse the individual circuits.

➔ The specified tripping characteristic must be observed. Otherwise, fire protection may be impaired.

7.7.1 Fuse Protection Supply Sensors, Module, Further CAN BUS Participants



Pin 1 = 8...32 V DC

Pin 3 = Ground (A)

Pin 2 = CAN High

Pin 4 = CAN Low

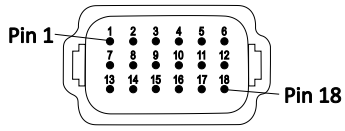
Fuse	To-be-secured	For supply	Required for the following modules: Art. no. (designation)
External back-up fuses (max. 13) are required. Tripping characteristic: T-fuse ≤ 120 s (voltage: 8...32 V DC)	**Connector: CAN Port 1 (CAN IN), Pin: 1**	Sensors on module and module consumption (max. 8 A) and remaining current for further CAN BUS participants (∑ max. 13 A).	**DP-34044-1-200** (xDB0808-DIO); **DP-34044-2-200** (xDB-16-ADI); **DP-34044-3-200** (xDB-16-PWM(i)); **DP-34044-5-200** (xDB-16-DO)

Tab. 18: Fuse protection supply sensors, module, further CAN BUS participants

7.7.2 Fuse Protection Supply Outputs (Actuators)

Fuse	To-be-secured	For supply	Necessary for following modules Art. No. (designation)
External back-up fuse max. 13 are required. Tripping characteristic: T-fuse ≤ 120 s (voltage: 8...32 V DC)	**Connector: Configuration & Power Port,Pin: 13**	Outputs (actuators) -- P1 --OUT1A, OUT1B, OUT2A, OUT2B (∑ max. 13 A)	**DP-34044-1-200** (xDB0808-DIO); **DP-34044-3-200** (xDB-16-PWM(i)); **DP-34044-5-200** (xDB-16-DO)
External back-up fuse max. 13 are required. Tripping characteristic: T-fuse ≤ 120 s (voltage: 8...32 V DC)	**Connector: Configuration & Power Port,Pin: 14**	Outputs (actuators) -- P2 --OUT3A, OUT3B, OUT4A, OUT4B (∑ 13 A max.)	**DP-34044-1-200** (xDB0808-DIO); **DP-34044-3-200** (xDB-16-PWM(i)); **DP-34044-5-200** (xDB-16-DO)
External back-up fuse max. 13 are required. Tripping characteristic: T-fuse ≤ 120 s (voltage: 8...32 V DC)	**Connector: Configuration & Power Port,Pin: 15**	Outputs (actuators) -- P3 --OUT5A, OUT5B, OUT6A, OUT6B (∑ 13 A max.)	**DP-34044-3-200** (xDB-16-PWM(i)); **DP-34044-5-200** (xDB-16-DO)
External back-up fuse max. 13 are required. Tripping characteristic: T-fuse ≤ 120 s (voltage: 8...32 V DC)	**Connector: Configuration & Power Port,Pin: 6**	Outputs (actuators) -- P4 --OUT7A, OUT7B, OUT8A, OUT8B (∑ max. 13 A)	**DP-34044-3-200** (xDB-16-PWM(i)); **DP-34044-5-200** (xDB-16-DO)

Configuration & Power Port

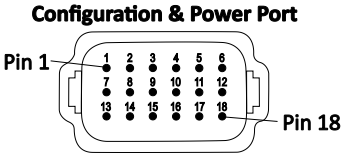


Pin 13 = Power 1

8...32 V DC

Pin 16 = Ground (B)

Configuration & Power Port

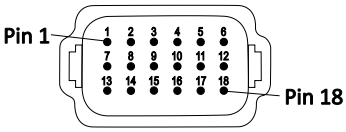


Pin 14 = Power2

8...32 V DC

Pin 17 = Ground (B)

Configuration & Power Port

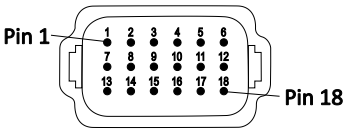


Pin 15 = Power 3

8...32 V DC

Pin 18 = Ground (B)

Configuration & Power Port



Pin 6 = Power 4

8...32 V DC

Pin 12 = Ground (B)

Tab. 19: Fuse protection supply outputs (actuators)

7.8 I/O Important Connections Notes

NOTE

Grounding to the chassis is not supported.

➔ Each DO, PWM and PWM(i) load must be fed back to Ground (B).

7.9 I/O Principle Input Connections

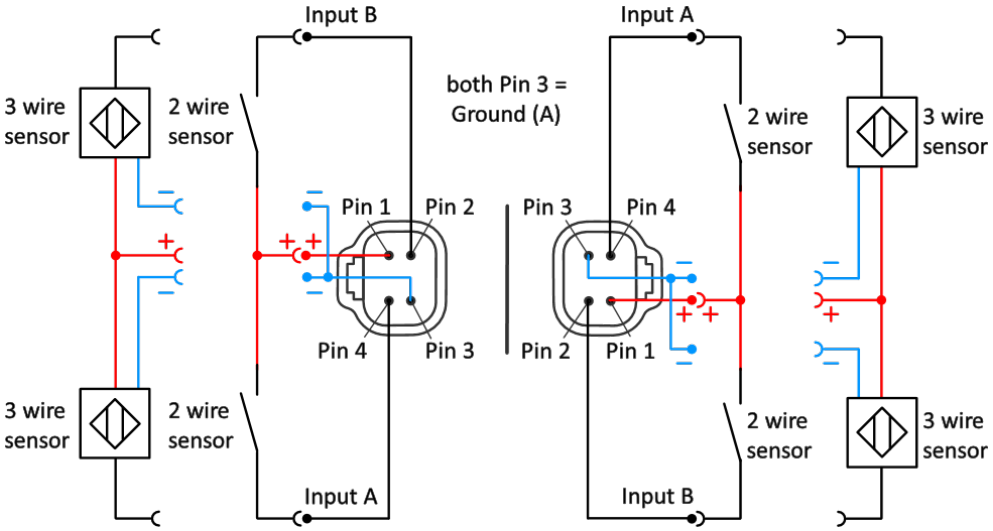


Abb. 19: I/O connection principle DI (digital inputs)

7.10 I/O Principle Output Connections

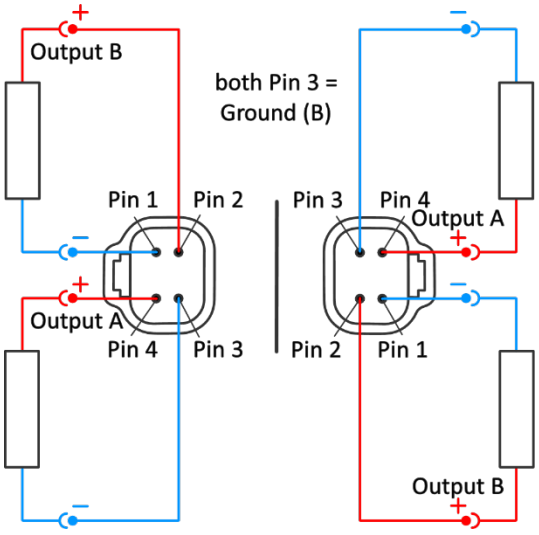


Abb. 20: I/O connection principle DO (digital outputs)

7.11 I/O Overview of Configuration Options

See also: For a list of the I/O configuration options with reference to the associated parameter tables, see chapter 8 Initial Operation "How To Use"

I/O Overview of the Inputs

	DP-34044-1-200	DP-34044-2-200	DP-34044-3-200	DP-34044-5-200
Property	**DI8/DO8**	**DI16**	**DO16 PWM(i)**	**DO16**
Total Inputs	**8**	**16**		
DI Digital inputs	8	16		
AI Analog inputs (configurable as **DI**)	4	8		
Frequency/counter inputs/ (encoder gray code)	2/2/ (1)	2/2/ (1)		

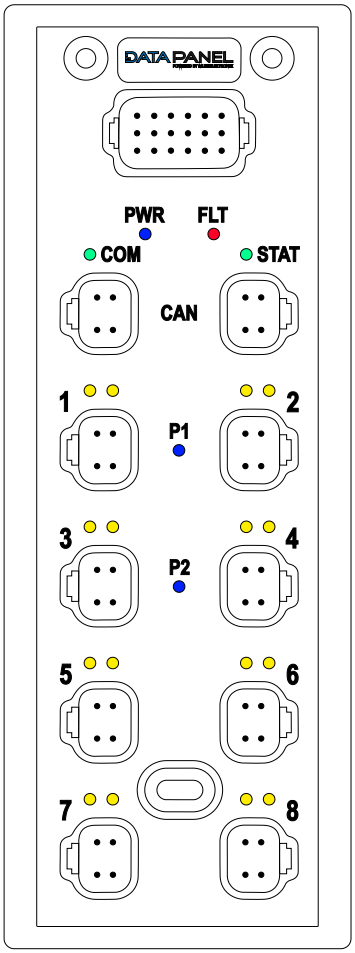
Tab. 20: I/O Overview of the Inputs

I/O Overview of the Outputs

	DP-34044-1-200	DP-34044-2-200	DP-34044-3-200	DP-34044-5-200
Property	**DI8/DO8**	**DI16**	**DO16 PWM(i)**	**DO16**
Total outputs	**8** **∑ max. 26 A**		**16** **∑ max. 52 A**	**16** **∑ max. 52 A**
Simultaneously switchable	8		16	16
DO Digital outputs 4A each	8		14	14
DO Digital outputs 10A each			2	2
PWM outputs 4A each	8		14	
PWM**(i)** outputs 4A each (current regulated)	8		14	

Tab. 21: I/O Overview of the Outputs

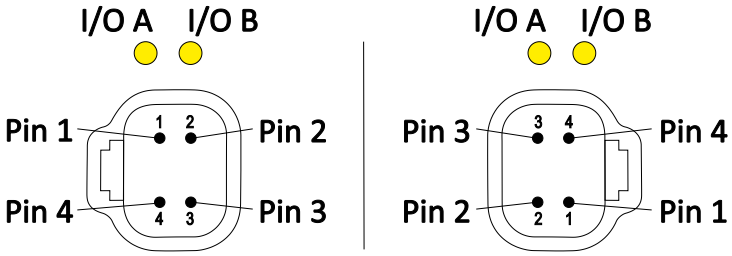
7.12 I/O Connections DP-34044-1 xDB0808-DIO



DP-34044-1 I/O type	Pin	I/O	Port
DO/PWM/PWM (i)	4	A	1
DO/PWM/PWM (i)	2	B	
DO/PWM/PWM (i)	4	A	3
DO/PWM/PWM (i)	2	B	
DI	4	A	5
DI / AI, Ratiom.	2	B	
DI / Freq., Count., Enc.	4	A	7
DI / AI, Ratiom.	2	B	

CAN

Port	I/O	Pin	DP-34044-1 I/O type
2	A	4	DO/PWM/PWM (i)
	B	2	DO/PWM/PWM (i)
4	A	4	DO/PWM/PWM (i)
	B	2	DO/PWM/PWM (i)
6	A	4	DI
	B	2	DI / AI, Ratiom.
8	A	4	DI / Freq., Count.
	B	2	DI / AI, Ratiom.



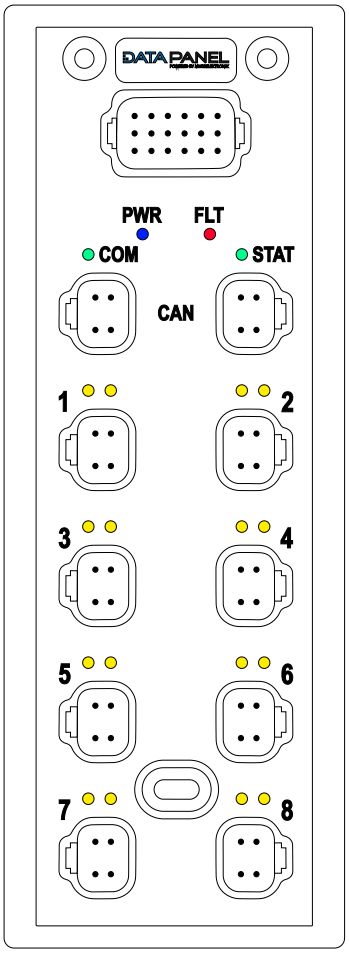
Input/Output (I/O) signals	
Pin 4	A
Pin 2	B

Input Ports DI, AI, Ratiom., Freq., Count., Enc.	
Pin 1	Power 8 ... 32 V DC
Pin 2	Input B
Pin 3	Ground (A)
Pin 4	Input A

Output Ports DO, PWM, PWM(i)	
Pin 1	Ground (B)
Pin 2	Ouput B (4 A)
Pin 3	Ground (B)
Pin 4	Ouput A (4 A)

Abb. 21: IO connections DP-34044-1 xDB0808-DIO

7.13 I/O Connections DP-34044-2 xDB-16-ADI

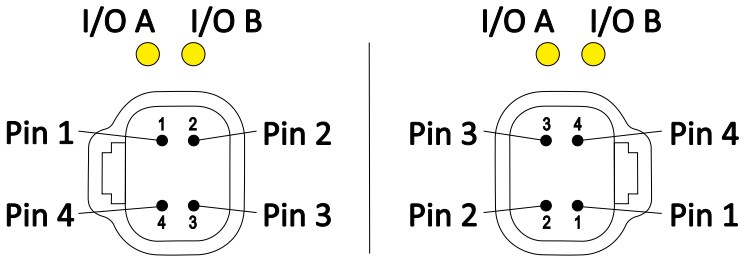


CAN

DP-34044-2 I/O type	Pin	I/O	Port
DI	4	A	1
DI / AI, Ratiom.	2	B	
DI	4	A	3
DI / AI, Ratiom.	2	B	
DI	4	A	5
DI / AI, Ratiom.	2	B	
DI / Freq., Count., Enc.	4	A	7
DI / AI, Ratiom.	2	B	

CAN

Port	I/O	Pin	DP-34044-2 I/O type
2	A	4	DI
	B	2	DI / AI, Ratiom.
4	A	4	DI
	B	2	DI / AI, Ratiom.
6	A	4	DI
	B	2	DI / AI, Ratiom.
8	A	4	DI / Freq., Count.
	B	2	DI / AI, Ratiom.

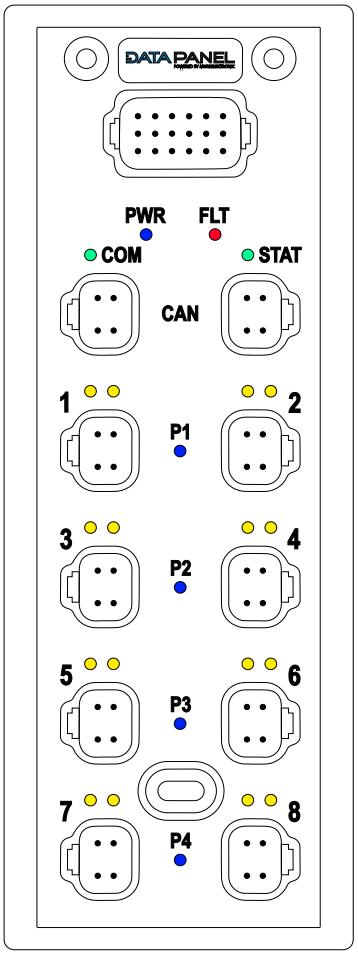


Input (I/O) signals	
Pin 4	A
Pin 2	B

Input Ports DI, AI, Ratiom., Freq., Count., Enc.	
Pin 1	Power 8 ... 32 V DC
Pin 2	Input B
Pin 3	Ground (A)
Pin 4	Input A

Abb. 22: I/O connections DP-34044-2 xDB-16-ADI

7.14 I/O Connections DP-34044-3 xDB-16-PWM

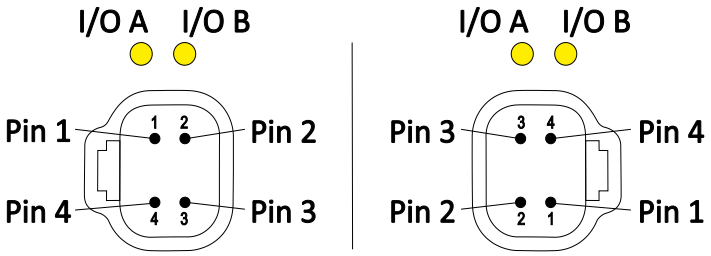


CAN

DP-34044-3 I/O type	Pin	I/O	Port
DO 10 A	4	A	1
DO/PWM/PWM (i)	2	B	
DO 10 A	4	A	3
DO/PWM/PWM (i)	2	B	
DO/PWM/PWM (i)	4	A	5
DO/PWM/PWM (i)	2	B	
DO/PWM/PWM (i)	4	A	7
DO/PWM/PWM (i)	2	B	

CAN

Port	I/O	Pin	DP-34044-3 I/O type
2	A	4	DO/PWM/PWM (i)
	B	2	DO/PWM/PWM (i)
4	A	4	DO/PWM/PWM (i)
	B	2	DO/PWM/PWM (i)
6	A	4	DO/PWM/PWM (i)
	B	2	DO/PWM/PWM (i)
8	A	4	DO/PWM/PWM (i)
	B	2	DO/PWM/PWM (i)



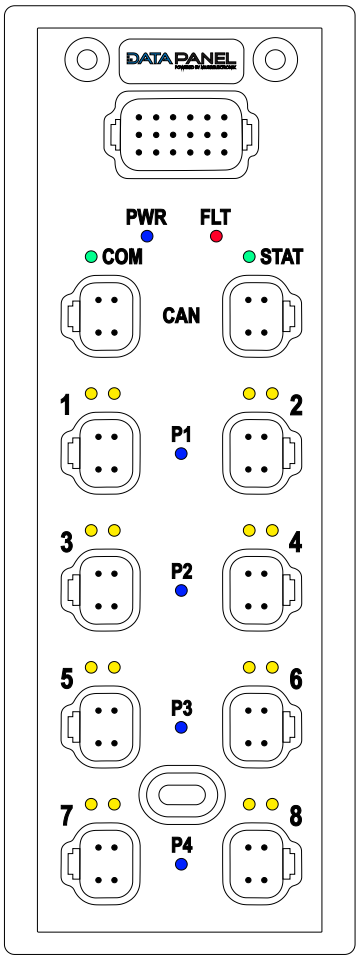
Output (I/O) signals	
Pin 4	A
Pin 2	B

Output Ports DO	
Pin 1	Ground (B)
Pin 2	Ouput B (4 A)
Pin 3	Ground (B)
Pin 4	Ouput A (4 A / 10 A)

Output Ports DO, PWM, PWM(i)	
Pin 1	Ground (B)
Pin 2	Ouput B (4 A)
Pin 3	Ground (B)
Pin 4	Ouput A (4 A)

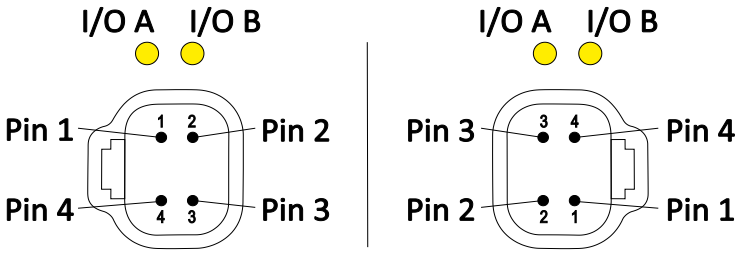
Abb. 23: I/O connections DP-34044-3 xDB-16-PWM

7.15 I/O Connections DP-34044-5 xDB-16-DO



DP-34044-5 I/O type	Pin	I/O	CAN Port
DO 10 A	4	A	1
DO	2	B	
DO 10 A	4	A	3
DO	2	B	
DO	4	A	5
DO	2	B	
DO	4	A	7
DO	2	B	

CAN Port	I/O	Pin	DP-34044-5 I/O type
2	A	4	DO
	B	2	DO
4	A	4	DO
	B	2	DO
6	A	4	DO
	B	2	DO
8	A	4	DO
	B	2	DO



Output (I/O) signals	
Pin 4	A
Pin 2	B

Output Ports DO	
Pin 1	Ground (B)
Pin 2	Ouput B (4 A)
Pin 3	Ground (B)
Pin 4	Ouput A (4 A / 10 A)

Abb. 24: I/O connections DP-34044-5 xDB-16-DO

7.16 Accessories and Connection Cables for Your Installation

Reference Please refer to chapter 3.9 Components in the modular system

8. Initial Operation "How To Use"

The following chapters provide step-by-step instructions on how to use our xtremeDB modules:

WARNING!

Possible malfunctions

Disregarding the other instructions and descriptions in this manual can lead to serious bodily injury.

➔ Before commissioning your machine or plant, you must ensure that the following activities have been carried out correctly and have been adapted to your application:

Assembly, electrical installation, settings in the parameters and application operation.

CAUTION!

Uncontrolled processes can cause damage to property and personal injury

Uncontrolled processes can occur in all commissioning phases, e.g. initial commissioning, recommissioning and when the configuration is changed.

➔ Always carry out commissioning in this order:

1 | Insert module

2 | Inspection and release of the system by a qualified person

3 | Put into operation

NOTE

The following commissioning guide cannot represent a 100% commissioning of your application, since this depends on several framework conditions such as control used, software environment and other peripheral modules.

➔ Use this information to get started and to check your own commissioning planning.

RECOMMENDATION

As a commissioning start-up aid:

A Quickstart Guide is provided using the example of a CODESYS user software environment with a CODESYS sample project:

➔ See in the online store as "xtremeDB DP-34044-1-200 CANopen" under the "Downloads / Legal Info." tab: www.data-panel.eu/dp-34044-1-200

Additionally we offer the matching "xtremeDB Starter Kit 01" and CODESYS sample project:

➔ See in the online store as "xtremeDB StarterKit 01" www.data-panel.eu/dp-sk01

See also: Chapter 5.1.7 Quickstart Guide with Starter Kit

8.1 Requirements

Module selection

1 | Determine the necessary functions in your application and select and procure suitable modules with the necessary system components.

➔ For help with these activities, refer to chapter 5 Planning and Preparing

➔ Our module configurator can support you in selecting the appropriate xtremeDB modules: See chapter 3.8 AI configurator for xtremeDB active I/O modules

Basic work

2 | Before starting the module, the following tasks must be completed:

➔ Mounting the module: See chapter 6 Mounting

➔ Install the module electrically: See chapter 7 Electrical Installation

➔ Set the CAN Node ID (address); further activities require this knowledge: See chapter 9.3.2 CAN Node ID (address)

➔ If necessary, adjust the CAN baud rate: See chapter 9.3.3 CAN baud rate

➔ As soon as the module is powered, it begins initial operation.

(At delivery the module is configured as digital I/O periphery by **default.** Further control messages are deactivated as they are not required).

Module/Control CAN BUS communication

3 | Connect the module to the controller:

➔ Knowledge of your controller and application software with associated descriptions and/or training must be available.

➔ Check again for the correct connection of the CAN connection cable between controller and module.

EDS file (module/module file)

➔ Install or integrate the module into the controller and application software: The software - EDS file (also called device/module file) is mandatory for the recognition of the module at the control.

For information on the EDS file: See chapter 9.3.5 Software - EDS file (device/module file)

➔ Integrating the module into your application software is done according to the specifications of your controller and application software.

8.2 Module Software Configuration Steps

Modules presets

4 | Check the **default** configurations of the module:

NOTE

All settings and parameter values are found in the delivery state. They are marked with **default** in the corresponding sections of the manual.

NOTE

To restore the factory **default values**: See chapter 10.8 CAN Store/Restore Parameters

- At delivery, the module is configured as digital I/O periphery **by default.** Further control messages are deactivated as they are not required.
- The sensor supply is automatically activated as of firmware version 1.10, but can be deactivated per port if required. See index 6200 chapter 10.3.3 Art. DP-34044-1 Write OUTPUTS 8-Bit 6200 to 10.3.5

Global parameters

5 | Configure the global parameters of the module:

➔ See additional information: Index 2000 in chapter 10.1 CAN Module/Device Global Configuration

Follow the most important global parameters:

➔ Check whether further status messages are required. Status messages must be set to the value 1 to be sent.

NOTE

If "Enable 24V DC" is not enabled, feeding 24V DC into the 12V DC system will cause an overvoltage fault in the system.

This parameter is also used for output overcurrent and short circuit detection.

- Enable 24V DC: Activates undervoltage and overvoltage fault limits for the 24V DC system.
- Output/Input Mode: Necessary for global I/O configuration (overwrites Index 2001).

NOTE

"ID1 / User ID" (user identification) is not related to the "Node ID" (node address).

- ID1: Here a reference number is given to the module, which is passed into the index 5000 User ID. Reference number is 0 by default.

I/Os

6 | Configuring the I/Os

➔ Per channel/pin: See chapter 10.2 CAN Module/Device I/O Configuration or in the following tables for I/O description of the configuration possibilities with reference to the corresponding parameter tables.

➔ Optional module-wide DI and/or DO: Index 2000 in 10.1 CAN Module/Device Global Configuration

➔ Define and configure parameters for all necessary input and output types.

Pages with overviews and references to the I/O configuration in the following list:

- DI (Digital Input)
- AI (Analog Input)
- Ratiometric
- FRQ (Frequency Input)
- Counter
- Encoder
- DO (Digital Output)
- DO 10A Limit
- PWM ("Pulse Width Modulation" or pulse width modulated signal)
- PWM[i] (pulse width modulated signal - with PID controller - current controlled)

PWM(i) vs PWM

The PWM(i) control has more status and control commands than the standard PWM control. The module takes a set point for current control and closes the controlled system according to the values entered in Kp and Ki. (The Kd value of the PID controller is constant.) The module sends back the current measured value via a current status message.

See also:

For an overview of the position of the ports, channels and pins on the module, see chapter: 7 Electrical Installation

8.3 I/O Overview Configuration Options

I/O Overview of the Inputs

	DP-34044-1-200	DP-34044-2-200	DP-34044-3-200	DP-34044-5-200
Property	**DI8/DO8**	**DI16**	**DO16 PWM(i)**	**DO16**
Total inputs	**8**	**16**		
DI Digital inputs	8	16		
AI Analog inputs (configurable as **DI**)	4	8		
Frequency/counter inputs/ (encoder gray code)	2/2/ (1)	2/2/ (1)		

Tab. 22: I/O Overview of the Inputs

I/O Overview of the Outputs

	DP-34044-1-200	DP-34044-2-200	DP-34044-3-200	DP-34044-5-200
Property	**DI8/DO8**	**DI16**	**DO16 PWM(i)**	**DO16**
Total outputs	**8** **∑ max. 26 A**		**16** **∑ max. 52 A**	**16** **∑ max. 52 A**
Simultaneously switchable	8		16	16
DO Digital outputs 4A each	8		14	14
DO Digital outputs 10A each			2	2
PWM outputs 4A each	8		14	
PWM**(i)** outputs 4A each (current regulated)	8		14	

Tab. 23: I/O Overview of the Outputs

8.4 Notes on I/O Configuration

NOTE

For individual configuration:

➔ The Global Input/Output Configuration must be 0.

NOTE

➔ In addition to the following I/O configurations, you should read the descriptions of the INMODEs and OUTMODEs.

INMODEs:

See chapter 10.2.1 Art.DP-34044-1, -2 (DI, AI, Ratiom., Freq., Cont., Enc.) I/O INMODE#

OUTMODEs:

See chapter 10.2.2 Art.DP-34044-1, -3, -5 (DO, PWM) I/O OUTMODE#

8.5 I/O DI Configuration

DP-34044-1-200

I/O type	Port (channel)	Configuration	Parameter
DI Digital inputs	5, 6, 7, 8 (Input A / Pin 4)	Digital Positive	I/O Configuration Index 2001or Global Configuration Index 2000
	5, 6, 7, 8 (Input B / Pin 2)	Digital Positive	

Tab. 24: Art. DP-34044-1 I/O DI configuration

DP-34044-2-200

I/O type	Port (channel)	Configuration	Parameter
DI Digital inputs	all (Input A / Pin 4)	Digital Positive	I/O Configuration Index 2001or Global Configuration Index 2000
	all (Input B / Pin 2)	Digital Positive	

Tab. 25: Art. DP-34044-2 I/O DI configuration

8.6 I/O AI (DI) Configuration

DP-34044-1-200

I/O type	Port (channel)	Configuration	Parameter
AI (DI) Analog inputs (configurable as DI)	all (Input B / Pin 2)	Digital Positive	I/O Configuration Index 2001or Global Configuration Index 2000
	5, 6, 7, 8 (Input B / Pin 2)	0 - 20 mA	I/O Configuration Index 2001
	5, 6, 7, 8 (Input B / Pin 2)	0 - 5 V	
	5, 6, 7, 8 (Input B / Pin 2)	0 - 10 V	
	5, 6, 7, 8 (Input B / Pin 2)	0 - 30 V	
	5, 6, 7, 8 (Input B / Pin 2)	Ratiometric	

Tab. 26: Art. DP-34044-1 I/O AI (DI) configuration

DP-34044-2-200

I/O type	Port (channel)	Configuration	Parameter
AI (DI) Analog inputs (configurable as DI)	all (Input B / Pin 2)	Digital Positive	I/O Configuration Index 2001or Global Configuration Index 2000
	all (Input B / Pin 2)	0 - 20 mA	I/O Configuration Index 2001
	all (Input B / Pin 2)	0 - 5 V	
	all (Input B / Pin 2)	0 - 10 V	
	all (Input B / Pin 2)	0 - 30 V	
	all (Input B / Pin 2)	Ratiometric	

Tab. 27: Art. DP-34044-2 I/O AI (DI) configuration

8.7 I/O Frequency Inputs Configuration

DP-34044-1-200, DP-34044-2-200

I/O type	Port (channel)	Configuration	Parameter
DI Digital inputs	7, 8 (Input A / Pin 4)	Frequency inputs	I/O Configuration Index 2001

Tab. 28: Art. DP-34044-1, DP-34044-2 I/O frequency inputs configuration

8.8 I/O Counter Inputs Configuration

DP-34044-1-200, DP-34044-2-200

I/O type	Port (channel)	Configuration	Parameter
DI Digital inputs	7, 8 (Input A / Pin 4)	Counter inputs	I/O Configuration Index 2001 or Counter Configuration Index 2003 or Set Point Configuration Index 3001

Tab. 29: Art. DP-34044-1, DP-34044-2 I/O counter inputs configuration

8.9 I/O Encoder Configuration

DP-34044-1-200, DP-34044-2-200

I/O type	Port (channel)	Configuration	Parameter
DI Digital inputs	7 (Input A / Pin 4)	Encoder Gray code	I/O Configuration Index 2001

Tab. 30: Art. DP-34044-1, DP-34044-2 I/O encoder configuration

8.10 I/O DO Configuration

DP-34044-3-200, DP-34044-5-200

I/O type	Port (channel)	Configuration	Parameter
DO Digital outputs	all (Output A / Pin 4)	Digital Positive	I/O Configuration Index 2001or Global Configuration Index 2000
	all (Output B / Pin 2)	Digital Positive	

Tab. 31: Art. DP-34044-3, DP-34044-5 I/O DO configuration

8.11 I/O DO 10A Configuration of the Limit Values

DP-34044-3-200, DP-34044-5-200

I/O type	Port (channel)	Configuration	Parameter
DO Digital outputs	1, 3 (Output A / Pin 4)	0 - 10 A	I/O Configuration Index 2001and 10 A Limit Configuration Index 2004

Tab. 32: Art. DP-34044-3, DP-34044-5 I/O DO 10 A Limit Configuration

8.12 I/O PWM, PWM(i) Configuration

DP-34044-1-200

I/O type	Port (channel)	Configuration	Parameter
DO Digital outputs	1, 2, 3, 4 (Output A / Pin 4)	PWM	I/O Configuration Index 2001and Frequency Configuration Index 3000
	1, 2, 3, 4 (Output B / Pin 2)	PWM	
	1, 2, 3, 4 (Output A / Pin 4)	PWM(i) current control-led	I/O Configuration Index 2001 and PWM(i) PID Configuration Index 2002and Frequency Configuration Index 3000
	1, 2, 3, 4 (Output B / Pin 2)	PWM(i) current control-led	

Tab. 33: Art. DP-34044-1 PWM, PWM(i) configuration

DP-34044-3-200

I/O type	Port (channel)	Configuration	Parameter
DO Digital outputs	2, 4, 5, 6, 7, 8 (Output A / Pin 4)	PWM	I/O Configuration Index 2001and Frequency Configuration Index 3000
	all (Output B / Pin 2)	PWM	
	2, 4, 5, 6, 7, 8 (Output A / Pin 4)	PWM(i) current control-led	I/O Configuration Index 2001and PWM(i) PID Configuration Index 2002and Frequency Configuration Index 3000
	all (Output B / Pin 2)	PWM(i) current control-led	

Tab. 34: Art. DP-34044-3 I/O PWM, PWM(i) configuration

8.13 Operation with User Program and Diagnostics

User program

Your module is now ready for operation with your application software or with your user program.

LED diagnostics

See chapter 9.4 Diagnostics via LED

BUS Diagnosis
Module status

See chapter 10.9.2 Art. DP-34044-1, -2, -3, -5 Response Message

And 10.9.7 Art. DP-34044-1, -2, -3, -5 Status Message F2 5002

And 10.9.11 Art. DP-34044-1, -2, -3, -5 Fault Message 5004

BUS Diagnostic alarm

At the following events, the module generates a diagnostic interrupt:

- Internal module errors
- Duplicate Node ID
- Faulty voltage
- Overload at the outputs
- Overtemperature
- Current measurement
- Status I/O on, off, error (overvoltage)
- Bus voltage
- Module temperature
- Input voltage

See chapter 10.9.1 Art. DP-34044-1, -2, -3, -5 Emergency Message

Activate diagnostic functions in the SDO and process data (PDO) transmission types.

Object Dictionary, Mapped Objects

NOTE

EDS files additionally contain "Object Dictionary" tables. These in turn contain the object dictionary and information about it and an overview of Mapped Objects/Indices.

➔ See chapter 9.3.5 Software - EDS file (device/module file)

Analog Signals, Cyclic Transmission of the PDOs

NOTE

Cyclic transmission of the process data (PDO) is recommended for analog signals. This way the BUS load can be reduced.

➔ The SDO index 5002 for the diagnostics and the index 1806 with "C0" should be activated (cyclic transmission). See chapter 10.10 CAN BUS Communication Segment

Diagnostic functions Activate in SDO	The modules have integrated diagnostic functions. These can be activated to detect the status of a port or to obtain useful operating data for the module. To map the status of a port, the corresponding SDO should be activated. ➔ For a general description of the "Process data (PDO) transmission types", see chapter: 5.4.4 General Information on CANopen
PDO monitoring "Change of State"	Change of an input value (event control) ➔ For the status of the inputs, see chapter 10.9.3 Art. DP-34044-1 Status Message F1 5001 to 10.9.6 ➔ For the status of the outputs, see chapter 10.9.8 Art. DP-34044-1 Status Message AMP Data 5003 to 10.9.10

8.14 Validation

Recognize and remove possible errors

Before finalizing your machine, you should validate your system.

➔ See chapter 9.6 Response Time

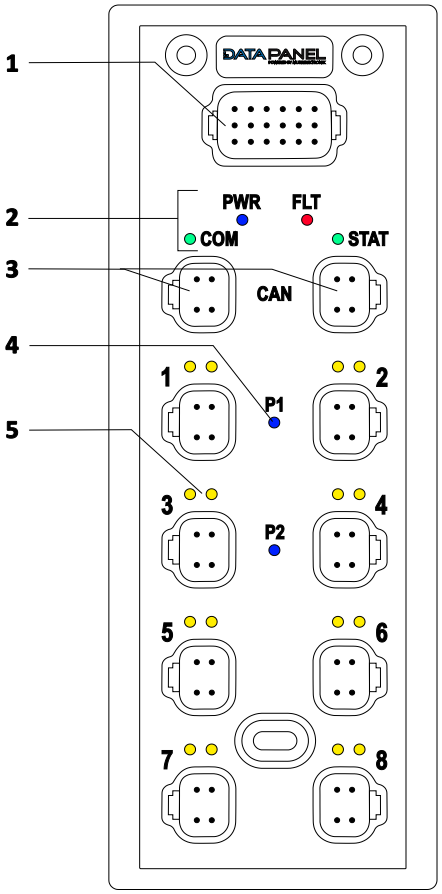
Diagnosis

It is recommended to use the diagnostic options and define the most important diagnostics for your application and check them before finalization.

➔ Log the I/Os and diagnostic functions and create an acceptance protocol.

9. Operation

9.1 Setting and Diagnostics Overview



1 | Configuration & Power connector for setting the CAN Node ID and the CAN baud rate (supply of the outputs)

2 | LED indicators PWR, FLT, COM, STAT for BUS and module status

3 | CAN connections for firmware updates, receiving all settings and commands of the control software (supply of the input sensor and the internal module electronics)

4 | LED indicators P1, P2 (P3, P4) for the status of the actuator supply voltage at the ports

5 | LED indicators I/O A, I/O B for the I/O status signals

Abb. 25: Setting and diagnostics overview

9.2 Software for Creating the User Programs

NOTE

The user is responsible for the safe function of application programs created by the user. If necessary, the user must also have an acceptance test performed by the appropriate testing and monitoring organizations in accordance with national regulations.

Application software

User programs can be created by the user with different application software/programming environments. The following steps are necessary to integrate our modules into an application software:

1 | Depending on the controller, additional data packages for peripheral modules/devices are required to be installed.

2 | Our module-specific EDS device file must be installed in the application software.

At this point the modules can be used in the application software:

3 | Your hardware structure is to be reproduced in your application software.

4 | The addresses of the modules are to be set on the module itself and in the application software.

5 | The I/Os of the modules are to be configured as required.

6 | Now the I/Os can be used in the user program.

Commissioning

To start the application/modules, refer to chapter 8 Initial Operation "How To Use"

9.3 Set (Configure)

9.3.1 Delivery State

NOTE

To restore the factory **default values**, see chapter 10.8 CAN Store/Restore Parameters

NOTE

All settings and parameter values are found in the delivery state. They are marked with **default** in the corresponding sections of the manual.

9.3.2 CAN Node ID (Source Address)

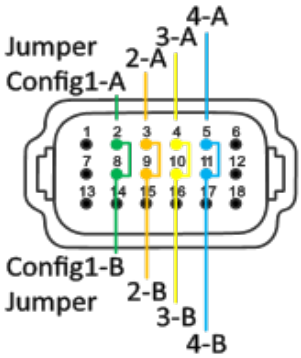
NOTE

- Please note that all CAN BUS modules in the same network need a different Node ID. If there is a duplicate Node ID in the network at power on, our module will stay in address arbitration mode (address switching mode) and will not operate.

➔ If you change the Node ID, a voltage reset of the module is required.

➔ If a plug contact is not assigned, it must be sealed with a "**DT dummy plug normal diameter" Part No.: DP-34042 -795** http://www.data-panel.eu/en/dp-34042-795. This is the only way to achieve protection class IP67.

Setting the CAN Node ID (address)



Set by bridging the pin pairs Config-...A to Config-...B.

1 | The **default** node ID is 1.

2 | **Jumpers Config1 to Config4** are for selecting the Node ID offset +1 to +15 in binary coded decimal (BCD).

3 | Node ID = 1 + jumper Node ID offset 0 to 15.

Node ID	Jumper Config1-A(PIN2)/ B(PIN8)	Jumper Config2-A(PIN3)/ B(PIN9)	Jumper Config3-A(PIN4)/ B(PIN10)	Jumper Config4-A(PIN5)/ B(PIN11)
1				
2	x			
3		x		
4	x	x		
5			x	
6	x		x	
7		x	x	
8	x	x	x	
9				x
10	x			x
11		x		x
12	x	x		x
13			x	x
14	x		x	x
15		x	x	x
16	x	x	x	x

Tab. 35: Setting the CAN Node ID (address)

Example for setting the CAN Node ID (address):

A jumper from pin 2 to pin 8 results in a 1 value, and another jumper from pin 4 to pin 10 gives a 4 value, which together give the **offset**: 1 + 4 = **5**.

Now the base address 1 and the offset of 5 set by the jumper makes the **Node ID**: 1 + 5 = **6**.

RECOMMENDATION

For quick and easy presetting of the Node ID, we offer preconfigured connection cables:

- For the module with the Art. No. DP-34044-1, the "DP-18-4 Configurator" must be used:

www.data-panel.eu/dp-18-4

- For the modules with the Art. No. DP-34044-3, DP-34044-5 the "DP-18-8 Configurator" must be used:

www.data-panel.eu/dp-18-8

Several options can be selected on the pre-configurable connection cable:

➔ At the dropdown menu "Addressing" you can select your offset and we set the jumpers and blind plugs.

Preconfigurable connection cable with Node ID

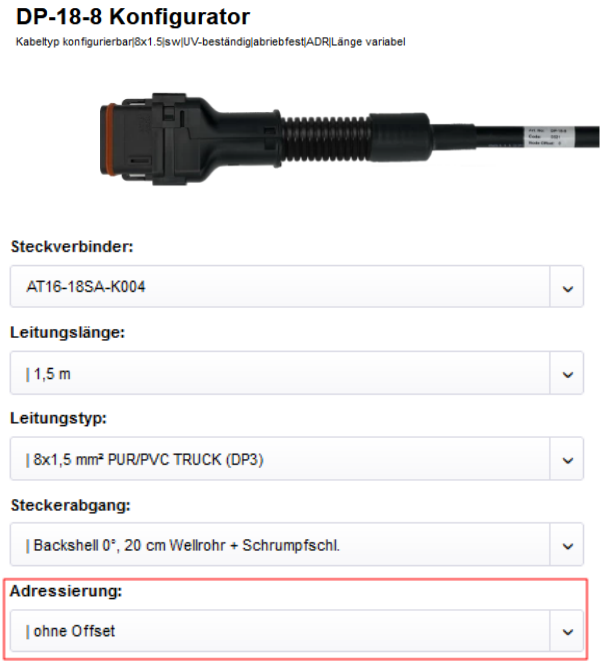


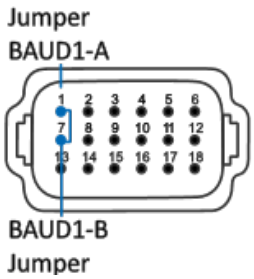
Abb. 26: Preconfigurable connection cable with Node ID

9.3.3 CAN Baud Rate

NOTE

- All modules in the same CAN BUS network must have the same baud rate.
- ➔ If you change the CAN baud rate, a voltage reset of the module is required to accept this change.
- ➔ If a plug contact is not assigned, it must be sealed with a "**DT dummy plug normal diameter**" **Part No.: DP-34042** http://www.data-panel.eu/en/dp-34042-795. Only in this way can the IP67 protection class be achieved.

Setting the CAN baud rate



1 | The **default** baud rate is 250 kbits/sec (no jumper necessary)

2 | **Jumper BAUD1** selects the baud rate

Jumper BAUD1-A(PIN1)/ B(PIN7)	Configuration description	Comment
	0 = 250k bits/sec	**default** baud rate
X	1 = 500k bits/sec	HS Baud rate

Tab. 36: Setting the CAN baud rate

Example CAN baud rate:

In this image there is no jumper installed between pin 1 and pin 7 and these pins are closed with image plugs.

The CAN baud rate is thus set to 250 kbits/sec.

9.3.4 Software - Firmware Updates

Firmware tool updates

All modules can be updated with firmware (downloadable from the DP webpage/in the store) using the xtremeDB programming kit (DP-34005-12) and a PC on site.

Abb. 27: xtremeDB Programming Kit

Related software applications for firmware updates

DPLoader is the software application used to upload the firmware to the xtremeDB modules.

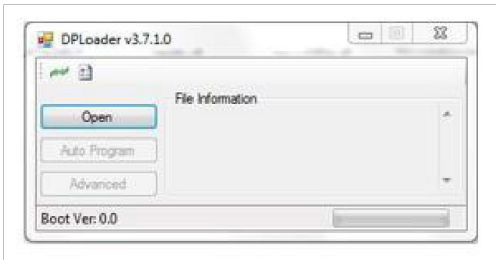


Abb. 28: DPLoader software application

Available upon request

The xtremeDB programming kit and DPLoader with corresponding instructions and user manuals are available on request.

9.3.5 Software - EDS File (Device/Module File)

WARNING!

Possible malfunctions

Unpredictable behavior of actuators can lead to serious bodily injury.

➔ EDS files are module-specific. Application-specific changes may only be made by Data Panel specialist personnel.

Software - EDS file (device/module file)

The EDS file is created explicitly to the module type (I/O). This has the consequence that, with the xtremeDB series, a separate EDS file with the extension "*.eds" is assigned to each module.

In the EDS file, important information about the module is stored, such as:

Vendor ID, manufacturer, part number, product name, software version, etc.

Object Dictionary Mapped Objects

In addition, the "Object Dictionary" tables are supplied, which contain the object dictionary and information about it and an overview of mapped objects/indices.

	A	B	C	D	E	F	G
1							
2	**Index**	**Mapped**	**Object**	**Function**	**Message**	**COB-ID**	**Data Length**
3	1800	6000: 1-2	TPDO1	Digital Input	DIGIN	0x180+NodeID	8
4	1801	6401: 1-4	TPDO2	Analog Input	AD2	0x280+NodeID	64

Object Dictionary | Information | **PDOs**

The most current EDS files can be found at: www.data-panel.eu on the product page under "Downloads / Legal Info." or directly via the links in the following table:

Item no.	Device type	Name of the ZIP file with download link	EDS file name and other files
DP-34044-1-200	xDB0808-DIO CANOPEN	DP-34044-1-200-EDS.zip	37000-561-xxxx.eds 34044-2-200 Object Dictionary.xlsx
DP-34044-2-200	xDB-16-ADI CANOPEN	DP-34044-2-200-EDS.zip	37000-562-xxxx.eds 34044-2-200 Object Dictionary.xlsx
DP-34044-3-200	xDB-16-PWM CANOPEN	DP-34044-3-200-EDS.zip	37000-563-xxxx.eds 34044-3-200 Object Dictionary.xlsx
DP-34044-5-200	xDB-16-DO CANOPEN	DP-34044-5-200-EDS.zip	37000-565-xxxx.eds 34044-5-200 Object Dictionary.xlsx

Tab. 37: EDS file (module file)

9.4 Diagnosis via LED

NOTE

When switching on the module, the LEDs light up for 3-5 seconds to check the function.

LED signals

For all tables, the following applies:

LED signal short = 500 ms "blink" / "pause".

and

LED signal long = 2 s "Pause

9.4.1 LED Indicators PWR, FLT, COM, STAT (BUS and Module Status)

NOTE

The functions are implemented according to the CiA standard DR 303-3 V 1.4.0.

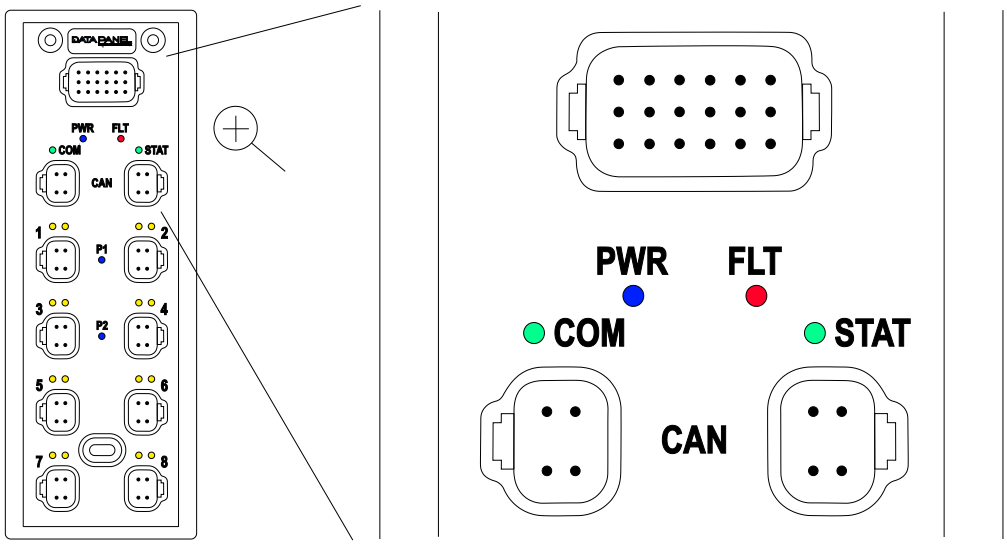


Abb. 29: LED indicators PWR, FLT, COM, STAT (BUS and module status)

The **PWR LED** (blue) indicates that the power supply of the module is connected.

Color	PWR LED	Status	Description
None	Off	No power at the module	Voltage supply at the module switched off or faulty.
Blue	On	Power on module	Voltage supply at the module is OK.

Tab. 38: PWR LED power supply module

The **FLT LED** indicates errors in the module.

ATTENTION

Material damage to the module

A module restart (voltage reset) without error correction may damage the module electronics.

➔ Eliminate the cause of the error before performing a module restart

NOTE

The following applies to the input voltage for 12 V DC systems:

Overvoltage as >18 V DC, undervoltage as < 11 V DC.

The following applies to the input voltage for 24 V DC systems:

Overvoltage as >32 V DC, undervoltage as < 20 V DC.

Color	FLT LED	Status	Description
Off	Off	No error	Module works normally (Module i.O.).
Red	Flashing 1 short "on"/ 1 short "off"	ID F0: Bootload mode	Module is in bootloader mode. Complete programming and restart module (voltage reset).
	1s flashing / 1 long "off"	ID F1: Output (actuator) overcurrent error	Eliminate short circuit or overcurrent and restart module (voltage reset).
	2s flashing / 1 long "off"	ID F2: Undervoltage warning	Increase supply voltage to at least 9 V DC.
	3s flashing / 1 long "off"	ID F3: Overvoltage warning	Reduce the supply voltage to a maximum of 32 V DC.
	4s flashing / 1 long "off"	ID F4: Overtemperature warning	Allow module to cool down, observe derating.
	5s flashing / 1 long "off"	ID F5: Overvoltage error at input (sensor)	Reduce input voltage or disconnect sensor. Then configure analog inputs to a higher range. Restart module (voltage reset).
	6s flashing / 1 long "off"	ID F6: Replacement	Unused
	7s flashing / 1 long "off"	ID F7: Node error	Restart module (voltage reset). If error persists, replace module.

Tab. 39: FLT LED Error in module

The **COM LED** or CANopen RUN LED indicates the CANopen network status detection.

Color	COM LED	Status	Description
Off	Off	Reset	Module in reset.
Green	Flickering	AutoBitrate/LSS	Automatic bitrate detection is running or LSS services are executed (alternating flickering with STAT LED).
	Flash	PRE-OPERATIONAL	Module in Pre-Operational Mode.
	1s flashing / 1 long "off“	STOPPED	Module in STOPPED mode.
	2s flashing / 1 long "off“	-	Reserved for future use.
	On	OPERATIONAL	Module in operational mode (ready for data exchange).

Tab. 40: COM LED or CANopen RUN LED CANopen network status detection

The **STAT LED** or CANopen ERROR LED shows the status of the CANopen physical layer and errors caused by missing CAN messages: Sync, Guard or Heartbeat.

Color	STAT LED	Status	Description
Off	Off	No error	Module works normally (Module i.O.).
Green	Flickering	AutoBitrate/LSS	Automatic bitrate detection is running or LSS services are executed (alternating flickering with COM LED).
	Flash	Invalid configuration	General configuration error.
	1s flashing / 1 long "off“	Warning limit reached	At least one of the error counters of the CAN controller has reached or exceeded the warning level (too many error frames).
	2s flashing / 1 long "off“	Error control event	A guarding error (NMT slave or NMT master) or a heartbeat error (heartbeat consumer) has occurred.
	3s flashing / 1 long "off“	Sync Error	Timeout: The sync telegram was not received within the parameterized communication cycle time. (see object directory 0x1006)
	4s flashing / 1 long "off“	Event timer error	An expected PDO was not received before the event timer expired.
	On	BUS off	CAN controller state: BUS off

Tab. 41: STAT LED or CANopen ERROR Status of the CANopen physical layer and errors

9.4.2 LED Indicators P1, P2, P3, P4 (Power at the Output Ports)

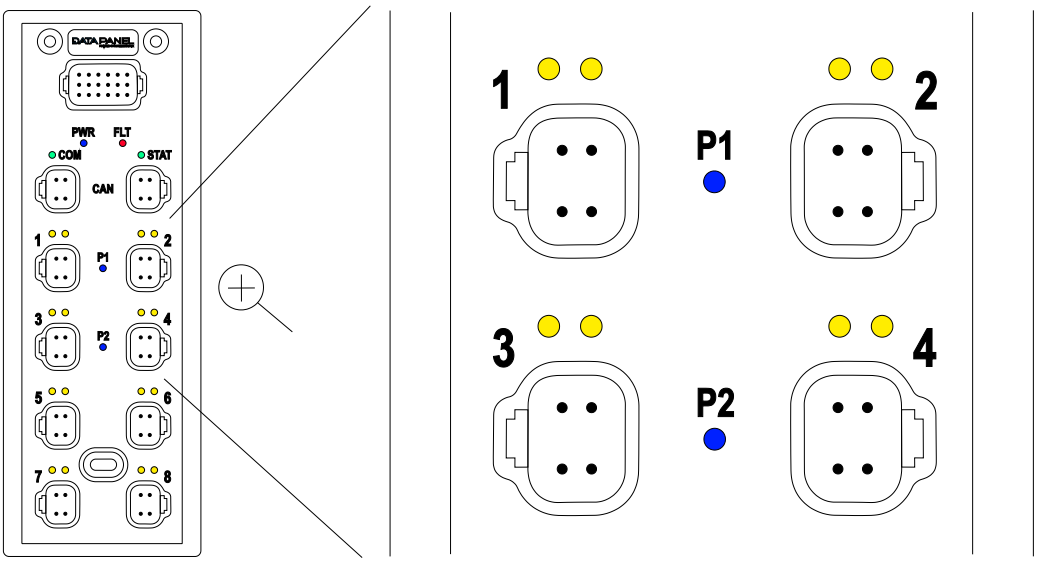


Abb. 30: LED indicators P1, P2, P3, P4 (power at the ports)

The **Px LEDs** (blue) indicate that the power supply of the output ports is OK.

(Only present on output ports.)

Color	P1 LED	Status	Description
Off	Off	No power on ports 1 and 2	Voltage supply for the actuators or at the output ports 1 and 2 switched off or faulty.
Blue	On	Power on ports 1 and 2	Voltage supply for the actuators or at the output ports 1 and 2 is OK.
Color	**P2 LED**	**Status**	**Description**
Off	Off	No power on ports 3 and 4	Voltage supply for the actuators or at the output ports 3 and 4 switched off or faulty.
Blue	On	Power on ports 3 and 4	Voltage supply for the actuators or at the output ports 3 and 4 is OK.
Color	**P3 LED**	**Status**	**Description**
Off	Off	No power on ports 5 and 6	Voltage supply for the actuators or at the output ports 5 and 6 switched off or faulty.
Blue	On	Power on ports 5 and 6	Voltage supply for the actuators or at the output ports 5 and 6 is OK.
Color	**P4 LED**	**Status**	**Description**
Off	Off	No power on ports 7 and 8	Voltage supply for the actuators or at the output ports 7 and 8 switched off or faulty.
Blue	On	Power on ports 7 and 8	Voltage supply for the actuators or at the output ports 7 and 8 is OK.

Tab. 42: P1, P2, P3, P4 LEDs Power supply of the output ports

9.4.3 LED Displays I/O A, I/O B (I/O Signals)

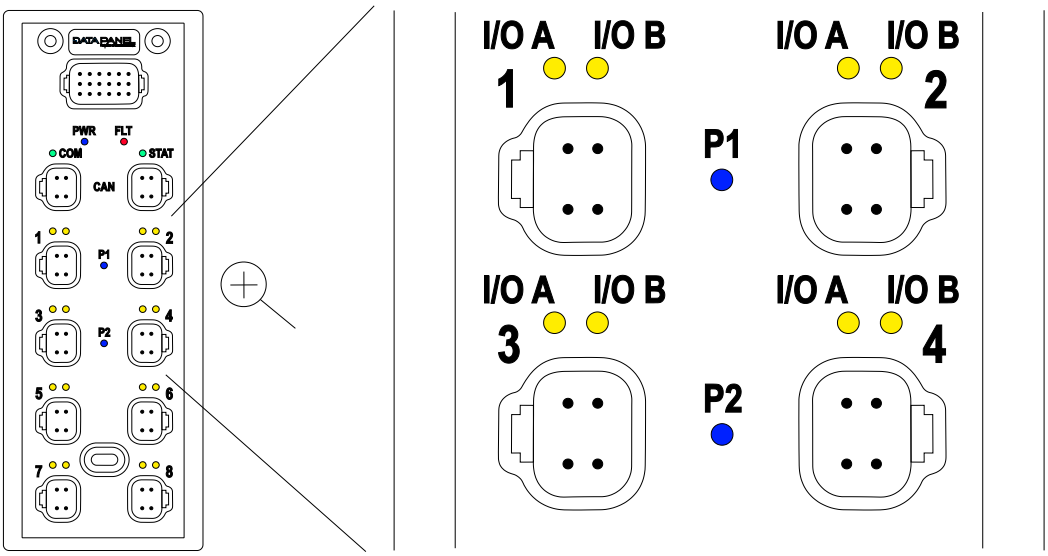


Abb. 31: LED displays I/O A, I/O B (I/O signals)

The **I/O A and I/O B LEDs** (yellow) indicate the status of the inputs or outputs at each port.

Color	I/O A LED, I/O B LED	Status	Description
Off	Off	I/O off	The input or output is switched off.
Yellow	On	I/O on	The input or output is switched on.
	Flash	I/O disturbed	The input or output is disturbed.
	Flashing 1 short "on"/ 1 short "off" (FLT LED)	Sensor supply error	Short circuit or error in the sensor supply. (This is also indicated by the FLT LED.)

Tab. 43: I/O A and I/O B LEDs Status of inputs or outputs

9.5 Diagnosis via the CAN BUS

NOTE

Refer to chapter 8.13 Operation with user program and diagnostics for more information.

9.6 Response Time

Calculation of the response time

To calculate the reaction time of a function, it is recommended to add the worst-case reaction times of all components involved and the runtimes on the communication paths.

Control side conditions

The reaction times were determined with a control update time of 4 ms and a control cycle of 20 ms. The response time increases if these general conditions are not met.

Maximum response time of a digital input

Calculate the maximum response time of an input in the error-free case from the triggering of a connected sensor to the provision at the CAN connection as follows:

Delay	Times
Response time of the connected sensor/switch	+_____ms
Input delay 15 ms plus 500 µs tolerance	+ 15.5 ms
Internal maximum processing time of the bus node T_{max}: 40 ms	+ 40 ms
Maximum response time of a digital input	= _____ms

Tab. 44: Maximum response time of a digital input

Maximum response time of a digital output

Calculate the maximum response time of an output in the error-free case from the telegram input at the CAN connection until the actuator is switched off as follows:

Delay	Times
Internal maximum processing time of the bus node T_{max}: 50 ms	+ 50 ms
Switch-off time of the connected actuator (observe interference suppression circuit, if applicable).	+ _____ms
Maximum response time of a digital output	= _____ms

Tab. 45: Maximum response time of a digital output

9.7 Maintenance, Servicing, Cleaning

Maintenance

The module itself is maintenance-free. No inspection and maintenance work is necessary during operation. However, a regular check of your overall system should be included in the maintenance schedule of your machine in order to detect possible defects caused by external influences at an early stage.

Cleaning

ATTENTION

Damage due to defective or damaged equipment

The functionality of the modules is not guaranteed.

- ➔ Clean soiled contacts only with oil-free compressed air or with alcohol and a leather cloth.
- ➔ Do not use contact spray.

When installed with MDC connection cables, clean your machine confidently: Our systems are resistant to high-pressure cleaners and a wide range of media. You can rely on our wiring solutions: Higher machine availability for increased productivity!

Repair

⚠ **CAUTION!**

Dangerous malfunctions and affected safety

Defective components can lead to dangerous malfunctions and affect safety.

- ➔ Repair work on the module may only be carried out by the manufacturer. Opening the module is prohibited.
- ➔ Plan for regular checks of the entire system in the maintenance plan of your machine and have defective components replaced immediately.

Repair without quality losses

If a module does malfunction, simply replace the module thanks to pluggable connection cables. Consistently high-quality wiring is guaranteed without a specialist workshop or expensive special tools.

Replacement of the module

The addressing and baud rate selection is integrated in the 18-pin central connector. The great advantage of this method: When the module is replaced, the setting remains in the installation. A replacement module is immediately ready for use after plugging in, without long setting or parameterization via PC.

Spare parts and accessories

ATTENTION

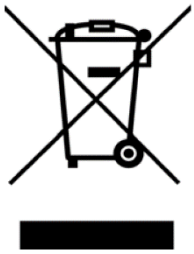
Unsuitable accessories can damage the product

Parts and equipment from other manufacturers can cause functional impairments and product damage.

➔ Use only accessories recommended by Data Panel.

9.8 Environmentally Sound Disposal

Disposal



The product can be returned to Data Panel GmbH free of charge in the case of disposal. This also applies to the original packaging and batteries or rechargeable batteries, if applicable. Devices/modules contaminated with hazardous substances will not be accepted for repair or disposal.

Return

1 | Mark the product and the packaging with "For disposal".

2 | Pack the product.

3 | Send the package to:

Data Panel GmbH
Blumenstraße 22/1
71522 Backnang

We ensure disposal in accordance with the legal regulations applicable in Germany. The last owner is responsible for shipping/transport to the destination.

10. Parameter

NOTE

Since the CiA standards are available in English, the table entries of the objects were adopted in English.

RECOMMENDATION

For general descriptions of the various CAN BUS parameters, see chapter 5.4 Descriptions of the CAN BUS

10.1 CAN Module/Device Global Configuration

10.1.1 Art. DP-34044-1 Global Configuration 2000

DP-34044-1
Module/Device Global Configuration
Index 2000
Digital Control / Status Bit Pairs
00 OFF / FALSE
01 ON / TRUE
10 NOT USED
11 NOT USED

Index	Sub-index	Name	Data Type	Byte	Bits	Description
2000	1	Ctrl Mode Reset	2 bit	1	1,2	Enables controller mode output reset
		Spare			3,4	Spare
		Spare			5,6	Spare
		Spare			7,8	Spare
	2	Enable 24V DC		2	1,2	00=low and over voltage fault limits for 12V DC Systems01=low and over voltage fault limits for 24V DC Systems
		Analog Raw Value			3,4	Sets all analog to be read in raw value as opposed to scaled (.005668/bit)
		Sensor Power Control			5,6	Enables Discrete Sensor Power Control (0=Default Sensor Power ON, 1=Discrete Control)
		Spare			7,8	Spare
	3	Output Mode	Byte	3	-	Sets the global configuration of ALL the outputs. Overrides Index 2001. 0=Mode 1 Not Used, 1=ON/OFF, 2=Data 0-4000, 3=Percent 0-100.0% (0-1000) (4=Amps (0-4000 mA) cannot be used in this mode)
	4	Input Mode	Byte	4	-	Sets the global configuration of the inputs. Overrides Index 2001. 0=Mode 2 Not Used, 1=Digital Positive, 2=Digital Ground (No analog 3-7, cannot be used in global configuration mode)
	5	ID1	Byte	5	-	User defined byte for configuration ID, this will be transmitted in the Index 5000: 4

Tab. 46: Art. DP-34044-1 Module/Device Global Configuration 2000

10.1.2 Art. DP-34044-2 Global Configuration 2000

DP-34044-2
Module/DeviceGlobal Configuration
Index 2000
Digital Control / Status Bit Pairs
00 OFF / FALSE
01 ON / TRUE
10 NOT USED
11 NOT USED

Index	Sub-index	Name	Data Type	Byte	Bits	Description
2000	1	Ctrl Mode Reset	2 bit	1	1,2	Enables controller mode output reset
		Spare			3,4	Spare
		Spare			5,6	Spare
		Spare			7,8	Spare
	2	Enable 24V DC		2	1,2	00=low and over voltage fault limits for 12V DC Systems01=low and over voltage fault limits for 24V DC Systems
		Analog Raw Value			3,4	Sets all analog to be read in raw value as opposed to scaled (.005668/bit)
		Sensor Power Control			5,6	Enables Discrete Sensor Power Control (0=Default Sensor Power ON, 1=Discrete Control)
		Spare			7,8	Spare
	3	Input Mode	Byte	3	-	Sets the global configuration of the inputs. Overrides Index 2001. 0=Mode 2 Not Used, 1=Digital Positive, 2=Digital Ground (No analog 3-7, cannot be used in global configuration mode)
	4	ID1	Byte	4	-	User defined byte for configuration ID, this will be transmitted in the Index 5000: 4

Tab. 47: Art. DP-34044-2 Module/Device Global Configuration 2000

10.1.3 Art. DP-34044-3 Global Configuration 2000

DP-34044-3
Module/DeviceGlobal Configuration
Index 2000
Digital Control / Status Bit Pairs
00 OFF / FALSE
01 ON / TRUE
10 NOT USED
11 NOT USED

Index	Sub-index	Name	Data Type	Byte	Bits	Description
2000	1	Ctrl Mode Reset	2 bit	1	1,2	Enables controller mode output reset
		Spare			3,4	Spare
		Spare			5,6	Spare
		Spare			7,8	Spare
	2	Enable 24V DC		2	1,2	00=low and over voltage fault limits for 12V DC Systems01=low and over voltage fault limits for 24V DC Systems
		Analog Raw Value			3,4	Sets all analog to be read in raw value as opposed to scaled (.005668/bit)
		Spare			5,6	Spare
		Spare			7,8	Spare
	3	Output Mode	Byte	3	-	Sets the global configuration of ALL the outputs. Overrides Index 2001. 0=Mode 1 Not Used, 1=ON/OFF, 2=Data 0-4000, 3=Percent 0-100.0% (0-1000) (4=Amps (0-4000 mA) cannot be used in this mode)
	4	ID1	Byte	4	-	User defined byte for configuration ID, this will be transmitted in theS TAT message.

Tab. 48: Art. DP-34044-3 Module/Device Global Configuration 2000

10.1.4 Art. DP-34044-5 Global Configuration 2000

DP-34044-5 Module/DeviceGlobal Configuration Index 2000

Digital Control / Status Bit Pairs

00 OFF / FALSE
01 ON / TRUE
10 NOT USED
11 NOT USED

Index	Sub-index	Name	Data Type	Byte	Bits	Description
2000	1	Ctrl Mode Reset	2 bit	1	1,2	Enables controller mode output reset
		Spare			3,4	Spare
		Spare			5,6	Spare
		Spare			7,8	Spare
	2	Enable 24V DC		2	1,2	00=low and over voltage fault limits for 12V DC Systems01=low and over voltage fault limits for 24V DC Systems
		Analog Raw Value			3,4	Internal Use Only
		Spare			5,6	Spare
		Spare			7,8	Spare
	3	ID1	Byte	3	-	User defined byte for configuration ID, this will be transmitted in the Index 5000: 4

Tab. 49: Art. DP-34044-5 Module/Device Global Configuration 2000

Link to the Electrical Installation chapter or to the Commissioning chapter

Chapter 7 Electrical Installation

Chapter 8 Initial Operation "How To Use“

10.2 CAN Module/Device I/O Configuration

NOTE

For individual configuration:

➔ The global input/output configuration must be 0

10.2.1 Art. DP-34044-1, -2 (DI, AI, Ratiom. , Freq. , Cont., Enc.) I/O INMODE#

NOTE

The sensor supply is automatically activated as of firmware version 1.10, but can be deactivated for each port if necessary. The sensor supply of each port can thus be used as an additional 1 A output: See index 6200 chapter 10.3.3 Art. DP-34044-1 Write OUTPUTS 8-Bit 6200 to 10.3.5.

NOTE

- INMODE# 0x7 or 0x8 applies only to INMODE7A and INMODE8A.
- Use INMODE# 0x6 for an input range with percentage measured battery voltage.
- INMODE# 0xA is only valid for INMODE7A (INMODE8A is ignored).

INMODE# The operation of the inputs varies depending on the configuration.

DP-34044-1, DP-34044-2 I/O Configuration IN-MODE# (DI, AI, Ratiom., Freq. , Count., Enc.)

INMODE#	Output Operation	Notes
0x0	Disabled	
0x1	Digital Positive	
0x2	Digital Ground	
0x3	Analog 4-20 mAmp	PORT#B Only
0x4	Analog 0-5 Vdc	PORT#B Only
0x5	Analog 0-10 Vdc	PORT#B Only
0x6	Analog 0-32 Vdc	PORT#B Only
0x7	Positive Digital Input	Frequency and Duty Cycle
0x8	Positive Digital Input	Counter
0x9	Ratiometric input	PORT#B Only
0xA	Positive Digital Input	Encoder Mode
0xF	Not Used	Invalid Output Configuration

Tab. 50: DP-34044-1, DP-34044-2 (DI, AI, Ratiom., Freq. Enc.) IO INMODE#

INMODE 0x0 = Disabled

It is recommended to disable all inputs that are not used. If you specify a "0" as the mode for an input, the input will be disabled and cannot be switched on.

INMODE 0x1 = Digital Positive On/Off (discrete operation)

This puts the input into the default discrete mode of operation.
When a positive voltage is applied to the input pin, the low bit turns on.
The signal appears in the following parameters:
10.3 CAN Module/Device Read and Write Input and Output
Art. DP-34044-1 Read Input 8-Bit 6000
Art. DP-34044-2 Read Input 8-Bit 6000

	High bit	Low bit
On	0	1
Off	0	0

Tab. 51: INMODE 0x1 = Digital Positive

INMODE 0x2 = Digital Ground On/Off (discrete operation)

This puts the input into discrete ground mode.
When a ground is applied to the input pin, the low bit turns on.
The signal appears in the following parameters:
10.3 CAN Module/Device Read and Write Input and Output
Art. DP-34044-1 Read Input 8-Bit 6000
Art. DP-34044-2 Read Input 8-Bit 6000

	High bit	Low bit
On	0	1
Off	0	0

Tab. 52: INMODE 0x2 = Digital Ground

INMODE 0x3 =

Analog 4-20 mAmp

This puts the input into 4-20mA mode with a data range of 0 - 20,000 = 4 - 20mA. A Word is assigned for this input. The 1st byte is the low byte and the 2nd byte is the high byte.

	Second byte (high byte)								First Byte (Low Byte)							
Example	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit
4mA	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
4000=	0	0	0	0	1	1	1	1	1	0	1	0	0	0	0	0

Tab. 53: INMODE 0x3 = Analog 4-20 mAmp

The signal appears in the following parameters:

Input xB

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

INMODE 0x4 =

Analog 0-5 V DC

This sets the input to 0-5 V DC mode with a range of 0 - 5.000 = 0 - 5.000mV. A Word is assigned for this input. The 1st byte is the low byte and the 2nd byte is the high byte.

	Second byte (high byte)								First Byte (Low Byte)							
Example	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit
3,6V	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
3600=	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	0

Tab. 54: INMODE 0x4 = Analog 0-5 V DC

The signal appears in the following parameters:

Input xB

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

INMODE 0x5 =

Analog 0-10 V DC

This sets the input to 0-10 V DC mode with a range of 0 - 10.000 = 0 - 10.000mV. A Word is assigned for this input. The 1st byte is the low byte and the 2nd byte is the high byte.

	Second byte (high byte)								First Byte (Low Byte)							
Example	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit
9,1V	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
9100=	0	0	1	0	0	0	1	1	1	0	0	0	1	1	0	0

Tab. 55: INMODE 0x5 = Analog 0-10 V DC

The signal appears in the following parameters:

Input xB

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

INMODE 0x6 =

Analog 0-32 V DC

This sets the input to 0-32 V DC mode with a range of 0 - 32.000 = 0 - 32.000mV. A Word is assigned for this input. The 1st byte is the low byte and the 2nd byte is the high byte.

	Second byte (high byte)								First Byte (Low Byte)							
Example	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit
24,1V	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
21100=	0	1	0	1	1	1	1	0	0	0	1	0	0	1	0	0

Tab. 56: INMODE 0x6 = Analog 0-32 V DC

The signal appears in the following parameters:

Input xB

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

INMODE 0x7 = Frequency

This sets the input to frequency operation mode. When a positive signal is applied to the input pin, the frequency is displayed.

The signal appears in the following parameters:

Input 7A and/or Input 8A

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

INMODE 0x8 = Counter

This sets the input to counter operation mode. When a positive signal is applied to the input pin, the counter reading is incremented.

The signal appears in the following parameters:

Input 7A and/or Input 8A

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

- Value 1 for "Counter 7A Enable Output 3A" provides an enable function for Output 3A. Output 3A is disabled when the counter > = set point.
- Value 1 for "Counter 8A Enable Output 4A" provides an enable function for Output 4A. Output 4A is disabled when the counter > = set point.

Notes on the Counter

1. Turning off the counter does not reset the cumulative value of the counter; a module reset is required to reset the counter.
2. If rollover is not selected, the counter runs only up to the entered set point.
3. Certain outputs can be controlled by the counter to work asynchronously to the controller. When the set point is reached, the output is switched off if the enable bit is switched on. Please note that the output must be switched on, as it is not switched on automatically when the counter is on.
4. Switching off the counter does not delete the current counter value or set point.
5. A counter reset does not delete the counter set point.
6. A counter reset clears the current counter value and does not turn the counter OFF.
7. The rollover signal does not change the enable function of Output 3A and Output 4A.
8. The counter values are 16-bit unsigned numbers.

Examples of counter operation

Counter Basic

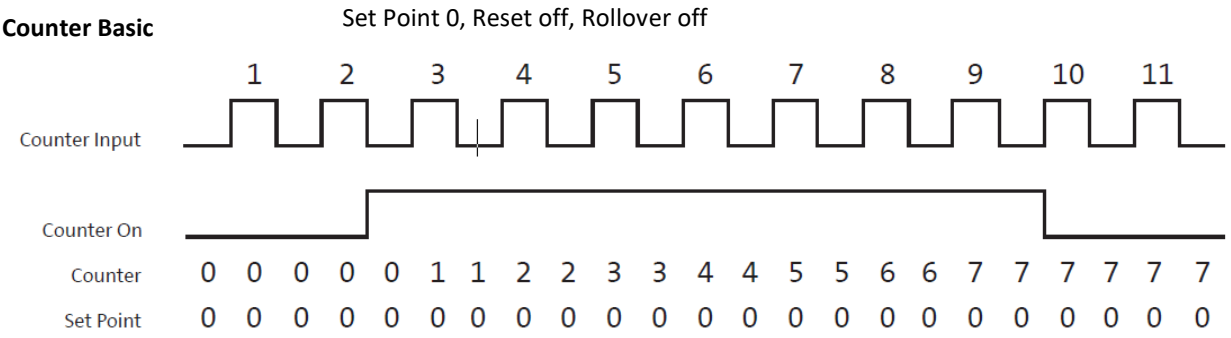


Abb. 32: Counter Basic

Counter - Using Reset

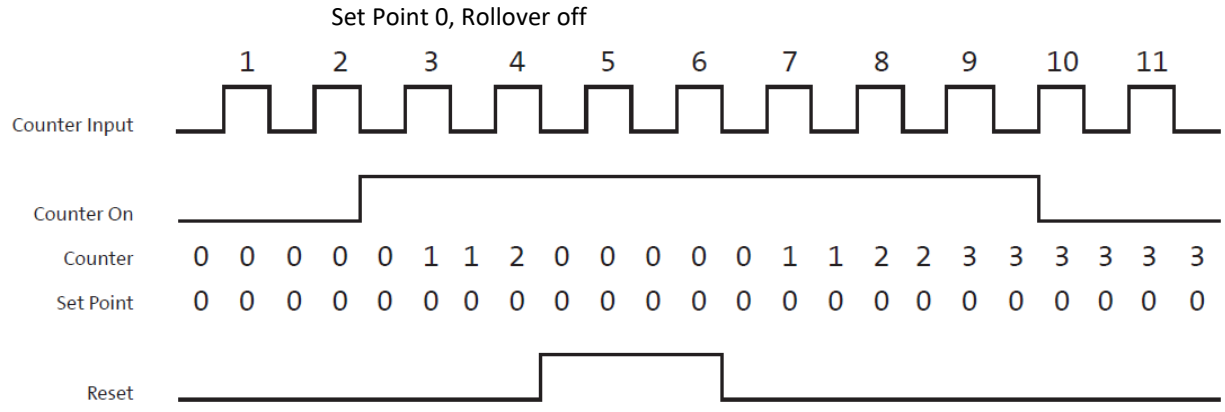


Abb. 33: Counter - Using Reset

Counter - Using Set Point

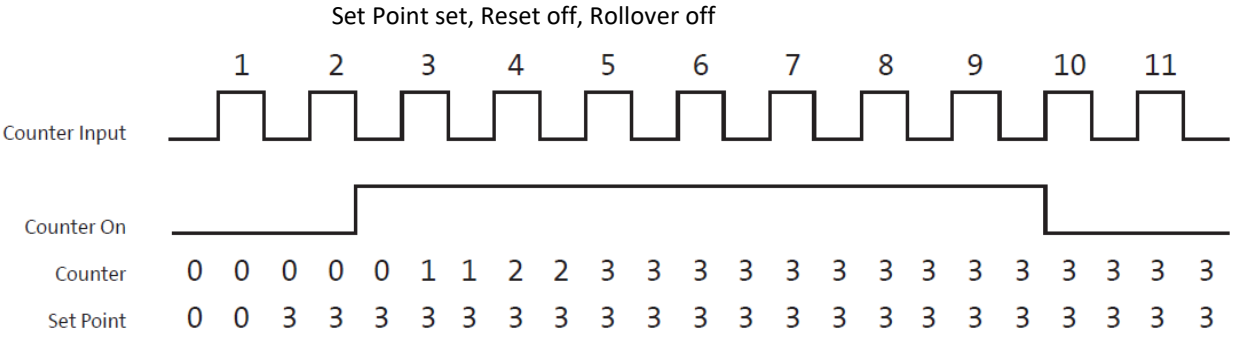


Abb. 34: Counter - Using Set Point

Counter - Roll Over and Output Enable

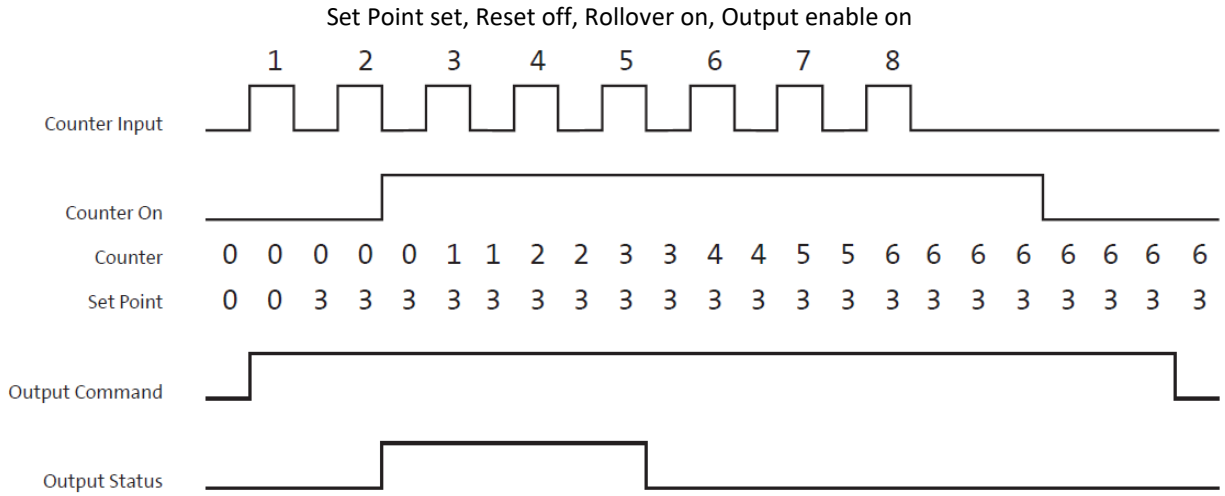


Abb. 35: Counter - Rollover and Output Enable

INMODE 0x9 = Ratiometric

This sets the input to ratiometric mode with a range of 0 - 1,000 = 0 - 100.0%. This input displays the percentage of the voltage read compared to the source voltage. A Word is assigned for this input. The 1st byte is the low byte and the 2nd byte is the high byte.

	Second byte (high byte)								First Byte (Low Byte)							
Example	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit	Bit
10%	8	7	6	5	4	3	2	1	8	7	6	5	4	3	2	1
100=	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0

Tab. 57: INMODE 0x9 = Ratiometric

The signal appears in the following parameters:

Input xB

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

INMODE 0xA = Encoder

This sets the input 7A to the encoder operating mode. When a positive signal is applied to the input pin, the counter value increases. Both Input 7A and 8A are used for the encoder input. When you switch Input 7A to Encoder operating mode, Input 8A is automatically set up to work with it as well.

The signal appears in the following parameters:

Input 7A (8A is ignored)

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

Encoder operation

The input must be set to encoder mode:

INMODE 0xA (only valid for input 7A (8A is ignored))

➔ Input 7A & 8A are used for encoder mode. Channel A of the encoder is connected to Input 7A & Channel B to Input 8A.

➔ If the encoder channels are connected correctly as above, the firmware will take care of incrementing (counting up) or decrementing (counting down) the count.

➔ The commands On/Off & Reset, are bound to the counter 7A.

The encoder data is displayed in the following message:

In encoder mode, bytes 1 & 2 are the low Word and bytes 3 & 4 are the high Word to indicate a 32-bit unsigned encoder count value.

Name	Data Type	Byte	Bits	Description
Encoder Input 7A	Word	1	Low byte	Input 7A
		2	High byte	Low Word
Encoder Input 7A	Word	3	Low byte	Input 7A
		4	High byte	High Word
Encoder Input 8A	Word	5	Low byte	Input 8A
		6	High byte	0x0000
Encoder Input 8A	Word	7	Low byte	Input 8A
		8	High byte	0x0000

Tab. 58: Encoder data

Link to the Commissioning chapter

To start the application/modules, refer to chapter 8 Initial Operation "How To Use“

10.2.2 Art. DP-34044-1, -3, -5 (DO, PWM) I/O OUTMODE#

NOTE

For individual configuration:

➔ The Global Input/Output Configuration must be 0

OUTMODE# The operation of the outputs varies depending on the configuration.

DP-34044-1, DP-34044-3, DP-34044-5
I/O Configuration OUTMODE#
(DO, PWM)

OUTMODE#	Output Operation	Notes
0x0	Disabled	
0x1	Digital	ON/OFF
0x2	Data (0 - 4000)	PWMx = 12 bits 0-4000, >4000=0
0x3	Percent (0% - 100.0%)	PWMx = 12 bits 0-1000, >1000=0
0x4	Amps (100 - 4,000)	PWMx = 12 bits 100-4000, >4000=0
0xF	Not Used	Invalid Output Configuration

Tab. 59: DP-34044-1, DP-34044-3 (DO, PWM) I/O OUTMODE#

OUTMODE 0x0 = Disabled It is recommended to disable all outputs that are not used. If you enter a "0" in the mode for an output, the output will be disabled and cannot be switched on.

OUTMODE 0x1 = Digital On/Off (discrete operation) This puts the output into the default discrete mode of operation.

The use of bit pairs in the following parameters switches the output on or off:

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Write OUTPUTS 8-bit 6200

Art. DP-34044-3, -5 Write OUTPUTS 8-Bit 6200

	High bit	Low bit
On	0	1
Off	0	0

Tab. 60: OUTMODE 0x1 = Digital Positive

OUTMODE 0x2 = Data PWM control with a value from 0-4000

This puts the output into PWM control with a range of 0 - 4000, which corresponds to 0 - 100% of the duty cycle. Two bytes are assigned to each PWM control message, with the first 12 bits used for the value. The first byte and the first 4 bits of the second byte are combined for the 12-bit control of the output.

Example	Second byte				First byte							
50%	Bit 4	Bit 3	Bit 2	Bit 1	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1
2000	0	1	1	1	1	1	0	1	0	0	0	0

Tab. 61: OUTMODE 0x2 = Data PWM control with a value of 0-4000

With a value greater than "0" in the PWM command and a "0" in the direction bit, output A switches on. If the direction bit is set to a "1", output B switches on.

Write the values to the following parameters:

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Write Analog OUTPUT 16-bit 6411

Art. DP-34044-3 Write Analog OUTPUT 16-bit 6411

OUTMODE 0x3 = Percent PWM control with a value from 0-1000 (= 0-100.0 %)

This puts the output into PWM control with a range of 0 - 1000, which corresponds to 0 - 100% of the duty cycle. Two bytes are assigned to each PWM control message, with the first 12 bits used for the value. The first byte and the first 4 bits of the second byte are combined for the 12-bit control of the output.

Example	Second byte				First byte							
50%	Bit 4	Bit 3	Bit 2	Bit 1	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1
500	0	0	0	1	1	1	1	1	0	1	0	0

Tab. 62: OUTMODE 0x3 = Percent PWM control with a value of 0-1000 (= 0-100.0 %)

With a value greater than "0" in the PWM command and a "0" in the direction bit, output A switches on. If the direction bit is set to a "1", output B switches on.

Write the values to the following parameters:

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Write Analog OUTPUT 16-bit 6411

Art. DP-34044-3 Write Analog OUTPUT 16-bit 6411

OUTMODE 0x4 = Amps PWM(i) control

This puts the output into PWM control with a range of 100 - 4000, which corresponds to 100 - 4000 mA. Each PWM control message is assigned two bytes, with the first 12 bits used for the value. The first byte and the first 4 bits of the second byte are combined for the 12-bit control of the output.

Example	Second byte				First byte							
2000mA	Bit 4	Bit 3	Bit 2	Bit 1	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1
2000	0	1	1	1	1	1	0	1	0	0	0	0

Tab. 63: OUTMODE 0x4 = Amps PWM(i) control

With a value greater than "0" in the PWM command and a "0" in the direction bit, output A switches on. If the direction bit is set to a "1", output B switches on.

Write the values to the following parameters:

10.3 CAN Module/Device Read and Write Input and Output

Art. DP-34044-1 Write Analog OUTPUT 16-bit 6411

Art. DP-34044-3 Write Analog OUTPUT 16-bit 6411

PWM(i) operation

Control loop tuning (Kp and Ki)

The PWM(i) control has more status and control commands than the standard PWM control. The module takes a set point for current control and closes the control loop according to the values entered in Kp and Ki. The module also sends back the current measured value via a current status message.

Command parameters:

10.2 CAN Module/Device I/O Configuration

Art. DP-34044-1 PWM(i) PID Configuration 2002

Art. DP-34044-3 PWM(i) PID Configuration 2002

Status parameters:

10.9 CAN BUS Message (diagnosis)

Art. DP-34044-1 Status Message AMP Data 5003

Art. DP-34044-3 Status Message AMP Data 5003

Link to the Commissioning chapter

To start the application/modules, refer to chapter 8 Initial Operation "How To Use“

10.2.3 Art. DP-34044-1 I/O Configuration 2001

DP-34044-1
Module/Device
I/O Configuration

Index	Sub-Index	Name	Data-Type	Byte	Bits	Fashion
2001	1	OUT-MODE1A	4 bit	1	1,2,3,4	0x0=Disabled, 0x1=On/Off, 0x2=Data (0-4000), 0x3=Percent (0-1000 = 0-100.0%), 0x4=Amps (0-4000 = 0-4.000A)
		OUT-MODE1B			5,6,7,8	
	2	OUT-MODE2A		2	1,2,3,4	
		OUT-MODE2B			5,6,7,8	
	3	OUT-MODE3A		3	1,2,3,4	
		OUT-MODE3B			5,6,7,8	
	4	OUT-MODE4A		4	1,2,3,4	
		OUT-MODE4B			5,6,7,8	
	5	INMODE5A		5	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE5B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC (0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	6	INMODE6A		6	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE6B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)

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DP-34044-1
Module/Device
I/O Configuration

Index	Sub-Index	Name	Data-Type	Byte	Bits	Fashion
2001	7	INMODE7A	4 bit	7	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x7=Digital Positive Frequency, 0x8= Counter, 0xA=Encoder
		INMODE7B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	8	INMODE8A		8	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x7=Digital Positive Frequency, 0x8= Counter
		INMODE8B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000- 20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)

Tab. 64: Art. DP-34044-1 Module/Device I/O Configuration 2001

10.2.4 Art. DP-34044-2 I/O Configuration 2001

DP-34044-2
Module/Device
I/O Configuration

Index	Sub-Index	Name	Data-Type	Byte	Bits	Fashion
2001	1	INMODE1A	4 bit	1	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE1B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC (0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	2	INMODE2A		2	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE2B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	3	INMODE3A		3	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE3B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)

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DP-34044-2
Module/Device
I/O Configuration

Index	Sub-Index	Name	Data-Type	Byte	Bits	Fashion
2001	4	INMODE4A	4 bit	4	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE4B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000- 20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	5	INMODE5A		5	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE5B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC (0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	6	INMODE6A		6	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground
		INMODE6B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)

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DP-34044-2
Module/Device
I/O Configuration

Index	Sub-Index	Name	Data-Type	Byte	Bits	Fashion
2001	7	INMODE7A	4 bit	7	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x7=Digital Positive Frequency, 0x8= Counter, 0xA=Encoder
		INMODE7B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000-20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)
	8	INMODE8A		8	1,2,3,4	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x7=Digital Positive Frequency, 0x8= Counter
		INMODE8B			5,6,7,8	0x0=Disabled, 0x1=Digital Positive, 0x2=Digital Ground, 0x3= 4-20ma (4000- 20000), 0x4= 0-5V DC (0-5000), 0x5= 0-10V DC (0-10000), 0x6= 0-32V DC(0-32000), 0x9= Ratiometric (0-100.0% of source V DC)

Tab. 65: Art. DP-34044-2 Module/Device I/O Configuration 2001

10.2.5 Art. DP-34044-3 I/O Configuration 2001

DP-34044-3 Module/Device I/O Configuration

Index	Sub-index	Name	Data-Type	Byte	Bits	Fashion
2001	1	OUT-MODE1A	4 bit	1	1,2,3,4	0x0=Disabled, 0x1=On/Off
		OUT-MODE1B			5,6,7,8	0x0=Disabled, 0x1=On/Off, 0x2=Data (0-4000), 0x3=Percent (0-1000 = 0-100.0%), 0x4=Amps (0-4000 = 0-4.000A)
	2	OUT-MODE2A		2	1,2,3,4	
		OUT-MODE2B			5,6,7,8	
	3	OUT-MODE3A		3	1,2,3,4	0x0=Disabled, 0x1=On/Off
		OUT-MODE3B			5,6,7,8	0x0=Disabled, 0x1=On/Off, 0x2=Data (0-4000), 0x3=Percent (0-1000 = 0-100.0%), 0x4=Amps (0-4000 = 0-4.000A)
	4	OUT-MODE4A		4	1,2,3,4	
		OUT-MODE4B			5,6,7,8	
	5	OUT-MODE5A		5	1,2,3,4	
		OUT-MODE5B			5,6,7,8	
	6	OUT-MODE6A		6	1,2,3,4	
		OUT-MODE6B			5,6,7,8	
	7	OUT-MODE7A		7	1,2,3,4	
		OUT-MODE7B			5,6,7,8	
	8	OUT-MODE8A		8	1,2,3,4	
		OUT-MODE8B			5,6,7,8	

Tab. 66: Art. DP-34044-3 Module/Device I/O Configuration 2001

10.2.6 Art. DP-34044-5 None I/O Configuration 2001

NOTE

Art. DP-34044-5 does not require I/O Configuration Index 2001

Link to: 8.5 I/O DI Configuration

10.2.7 Art. DP-34044-1 PWM(i) PID Configuration 2002

DP-34044-1 PWM(i) PID Configuration

Controlled system tuning (Kp and Ki)

Kd value of the PID controller is constant

It is recommended to start with small Kp, Ki values and test the application step by step.

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2002	1	Port1A_Kp	Byte	1	All	Output 1A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	2	Port1A_Ki		2		Output 1A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	3	Port1B_Kp		3		Output 1B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	4	Port1B_Ki		4		Output 1B integral set point (0-250 = 0-2.50, >250=0) **default** 100
	5	Port2A_Kp		5		Output 2A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	6	Port2A_Ki		6		Output 2A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	7	Port2B_Kp		7		Output 2B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	8	Port2B_Ki		8		Output 2B integral set point (0-250 = 0-2.50, >250=0) **default** 100

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DP-34044-1
PWM(i) PID Configuration

Controlled system tuning (Kp and Ki)

Kd value of the PID controller is constant

It is recommended to start with small Kp, Ki values and test the application step by step.

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2002	9	Port3A_Kp	Byte	9	All	Output 3A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	10	Port3A_Ki		10		Output 3A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	11	Port3B_Kp		11		Output 3B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	12	Port3B_Ki		12		Output 3B integral set point (0-250 = 0-2.50, >250=0) **default** 100
	13	Port4A_Kp		13		Output 4A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	14	Port4A_Ki		14		Output 4A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	15	Port4B_Kp		15		Output 4B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	16	Port4B_Ki		16		Output 4B integral set point (0-250 = 0-2.50, >250=0) **default** 100

Tab. 67: Art. DP-34044-1 PWM(i) PID Configuration 2002

10.2.8 Art. DP-34044-3 PWM(i) PID Configuration 2002

DP-34044-3 PWM(i) PID Configuration

Controlled system tuning (Kp and Ki)

Kd value of the PID controller is constant

It is recommended to start with small Kp, Ki values and test the application step by step.

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2002	1	Port1A_Kp	Byte	1		**Not Used** (Output 1A proportional set point (0-250 = 0-2.50, >250=0) **default** 100)
	2	Port1A_Ki				**Not Used** (Output 1A proportional set point (0-250 = 0-2.50, >250=0) **default** 100)
	3	Port1B_Kp		2		Output 1B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	4	Port1B_Ki				Output 1B integral set point (0-250 = 0-2.50, >250=0) **default** 100
	5	Port2A_Kp		3		Output 2A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	6	Port2A_Ki				Output 2A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	7	Port2B_Kp		4		Output 2B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	8	Port2B_Ki				Output 2B integral set point (0-250 = 0-2.50, >250=0) **default** 100

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DP-34044-3
PWM(i) PID Configuration

Controlled system tuning (Kp and Ki)

Kd value of the PID controller is constant

It is recommended to start with small Kp, Ki values and test the application step by step.

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2002	9	Port3A_Kp	Byte	5		**Not Used** (Output 3A proportional set point (0-250 = 0-2.50, >250=0) **default** 100)
	10	Port3A_Ki				**Not Used** (Output 3A proportional set point (0-250 = 0-2.50, >250=0) **default** 100)
	11	Port3B_Kp		6		Output 3B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	12	Port3B_Ki				Output 3B integral set point (0-250 = 0-2.50, >250=0) **default** 100
	13	Port4A_Kp		7		Output 4A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	14	Port4A_Ki				Output 4A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	15	Port4B_Kp		8		Output 4B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	16	Port4B_Ki				Output 4B integral set point (0-250 = 0-2.50, >250=0) **default** 100

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DP-34044-3
PWM(i) PID Configuration

Controlled system tuning (Kp and Ki)

Kd value of the PID controller is constant

It is recommended to start with small Kp, Ki values and test the application step by step.

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2002	17	Port5A_Kp	Byte	9		Output 5A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	18	Port5A_Ki				Output 5A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	19	Port5B_Kp		10		Output 5B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	20	Port5B_Ki				Output 5B integral set point (0-250 = 0-2.50, >250=0) **default** 100
	21	Port6A_Kp		11		Output 6A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	22	Port6A_Ki				Output 6A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	23	Port6B_Kp		12		Output 6B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	24	Port6B_Ki				Output 6B integral set point (0-250 = 0-2.50, >250=0) **default** 100

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DP-34044-3
PWM(i) PID Configuration

Controlled system tuning (Kp and Ki)

Kd value of the PID controller is constant

It is recommended to start with small Kp, Ki values and test the application step by step.

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2002	25	Port7A_Kp	Byte	13		Output 7A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	26	Port7A_Ki				Output 7A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	27	Port7B_Kp		14		Output 7B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	28	Port7B_Ki				Output 7B integral set point (0-250 = 0-2.50, >250=0) **default** 100
	29	Port8A_Kp		15		Output 8A proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	30	Port8A_Ki				Output 8A integral set point (0-250 = 0-2.50, >250=0) **default** 100
	31	Port8B_Kp		16		Output 8B proportional set point (0-250 = 0-2.50, >250=0) **default** 100
	32	Port8B_Ki				Output 8B integral set point (0-250 = 0-2.50, >250=0) **default** 100

Tab. 68: Art. DP-34044-3 PWM(i) PID Configuration 2002

10.2.9 Art. DP-34044-1, -2 Counter Configuration 2003

DP-34044-1, DP-34044-2
Counter Configuration

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2003	1	Counter 7A On/Off	2 bit	1	1,2	Enable Counter 7A, 00 = Off, 01 = On (used in encoder mode)
		Counter 7A Reset			3,4	Reset Counter 7A, 00 = Off, 01 = On (used in encoder mode)
		Counter 7A Roll-Over Enabled			5,6	Enable Counter 7A Rollover, count continues after set point is achieved, 00 = Off, 01 = On (not used in encoder mode)
		Counter 7A Enable Out 3A			7,8	Enable Output 3A when Counter 7A is enabled and set point hasn't been reached, 00 = Off, 01 = On (not used in encoder mode)
	2	Counter 8A On/Off		2	1,2	Enable Counter 8A, 00 = Off, 01 = On (not used in encoder mode)
		Counter 8A Reset			3,4	Reset Counter 8A, 00 = Off, 01 = On (not used in encoder mode)
		Counter 8A Roll-Over Enabled			5,6	Enable Counter 8A Rollover, count continues after set point is achieved, 00 = Off, 01 = On (not used in encoder mode)
		Counter 8A Enable Out 4A			7,8	Enable Output 4Awhen Counter 8A is enabled and set point hasn't been reached, 00 = Off, 01 = On (not used in encoder mode)

Tab. 69: Art. DP-34044-1, DP-34044-2 Counter Configuration 2003

10.2.10 Art. DP-34044-3, -5 10 A Limit Configuration 2004

DP-34044-3, DP-34044-5 10 A Limit Configuration

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
2004	1	Port_1A	Byte	1		Set Amp range 0.0-10.0A = Data Range 0-100
	2	Port_3A		2		

Tab. 70: Art. DP-34044-3, -5 10 A Limit Configuration 2004

10.2.11 Art. DP-34044-1, -3 Frequency Configuration 3000

NOTE

- PWM frequency: 40-1100 Hz
- PWM(i) Frequency: 100-700 Hz

DP-34044-1, DP-34044-3 Frequency Configuration

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
3000	1	Frequency	Word	1		Sets the configuration of the frequency for all channels (30-1140 Hz)
				2		

Tab. 71: Art. DP-34044-1, DP-34044-3 Frequency Configuration 3000

10.2.12 Art. DP-34044-1, -2 Set Point Configuration 3001

DP-34044-1, DP-34044-2 Set Point Configuration

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
3001	1	Counter 7ASet Point	Word	1		Set point for count on Counter 7A
				2		
	2	Counter 8ASet Point		3		Set point for count on Counter 8A
				4		

Tab. 72: Art. DP-34044-1, DP-34044-2 Set Point Configuration 3001

Link to: 8.5 I/O DI configuration

10.3 CAN Module/Device Read and Write Input and Output

10.3.1 Art. DP-34044-1 Read Input 8-Bit 6000

DP-34044-1
Read INPUT 8-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6000	1	Input5A	1 bit	1	1	00 = Off, 01 = On, 10 = fault
		Input5B			2	
		Input6A			3	
		Input6B			4	
		Input7A			5	
		Input7B			6	
		Input8A			7	
		Input8B			8	

Tab. 73: Art. DP-34044-1 Module/Device Read Input 8-Bit 6000

10.3.2 Art. DP-34044-2 Read Input 8-Bit 6000

DP-34044-2
Read INPUT 8-bit

In-dex	Sub-In-dex	Name	Data Type	Byte	Bits	Description
6000	1	Input1A	1 bit	1	1	00 = Off, 01 = On, 10 = fault
		Input1B			2	
		Input2A			3	
		Input2B			4	
		Input3A			5	
		Input3B			6	
		Input4A			7	
		Input4B			8	
	2	Input5A		2	1	
		Input5B			2	
		Input6A			3	
		Input6B			4	
		Input7A			5	
		Input7B			6	
		Input8A			7	
		Input8B			8	

Tab. 74: Art. DP-34044-2 Module/Device Read Input 8-Bit 6000

10.3.3 Art. DP-34044-1 Write OUTPUTS 8-Bit 6200

DP-34044-1
Write OUTPUT 8-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6200	1	Output1A	1 bit	1	1	Turns the output on when in "On/Off" Mode, (not used when using any other mode)
		Output1B			2	
		Output2A			3	
		Output2B			4	
		Output3A			5	
		Output3B			6	
		Output4A			7	
		Output4B			8	
	2	Output5A		2	1	Not used on this module
		Output5B			2	
		Output6A			3	
		Output6B			4	
		Output7A			5	
		Output7B			6	
		Output8A			7	
		Output8B			8	
	3	Input Power Port1		3	1	Not used on this module
		Input Power Port2			2	
		Input Power Port3			3	
		Input Power Port4			4	
		Input Power Port5			5	Enable for Port 5 Input Power, (00 = off), (01 = on)
		Input Power Port6			6	Enable for Port 6 Input Power, (00 = off), (01 = on)
		Input Power Port7			7	Enable for Port 7 Input Power, (00 = off), (01 = on)
		Input Power Port8			8	Enable for Port 8 Input Power, (00 = off), (01 = on)

Note

The sensor supply of each port can be used as an additional 1 A output.

Tab. 75: Art. DP-34044-1 Module/Device Write OUTPUTS 8-Bit 6200

10.3.4 Art. DP-34044-2 Write OUTPUTS 8-Bit 6200

DP-34044-2
Write OUTPUT 8-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6200	1	Output1A	1 bit	1	1	Not used on this module
		Output1B			2	
		Output2A			3	
		Output2B			4	
		Output3A			5	
		Output3B			6	
		Output4A			7	
		Output4B			8	
	2	Output5A		2	1	Not used on this module
		Output5B			2	
		Output6A			3	
		Output6B			4	
		Output7A			5	
		Output7B			6	
		Output8A			7	
		Output8B			8	
	3	Input Power Port1		3	1	Enable for Port 1Input Power, (00 = off), (01 = on)
		Input Power Port2			2	Enable for Port 2Input Power, (00 = off), (01 = on)
		Input Power Port3			3	Enable for Port 3Input Power, (00 = off), (01 = on)
		Input Power Port4			4	Enable for Port 4Input Power, (00 = off), (01 = on)
		Input Power Port5			5	Enable for Port 5 Input Power, (00 = off), (01 = on)
		Input Power Port6			6	Enable for Port 6 Input Power, (00 = off), (01 = on)
		Input Power Port7			7	Enable for Port 7 Input Power, (00 = off), (01 = on)
		Input Power Port8			8	Enable for Port 8 Input Power, (00 = off), (01 = on)

Note
The sensor supply of each port can be used as an additional 1 A output.

Tab. 76: DP-34044-2 Module/Device Write OUTPUTS 8-Bit 6200

10.3.5 Art. DP-34044-3, -5 Write OUTPUTS 8-Bit 6200

DP-34044-3, DP-34044-5

Write OUTPUT 8-bit

In-dex	Sub-In-dex	Name	Data Type	Byte	Bits	Description
6200	1	Output1A	1 bit	1	1	Turns the output on when in "On/Off" Mode, (not used when using any other mode)
		Output1B			2	
		Output2A			3	
		Output2B			4	
		Output3A			5	
		Output3B			6	
		Output4A			7	
		Output4B			8	
	2	Output5A		2	1	
		Output5B			2	
		Output6A			3	
		Output6B			4	
		Output7A			5	
		Output7B			6	
		Output8A			7	
		Output8B			8	

Tab. 77: DP-34044-3, DP-34044-5 Module/Device Write OUTPUTS 8-Bit 6200

10.3.6 Art. DP-34044-1, -2 (AI, Ratiom.) Read Analog INPUT 16-Bit INMODE#

DP-34044-1, DP-34044-2

Read Analog INPUT 16-bit

AI, Ratiom.

INMODE#	Output Operation	Notes
0x3	Analog 4-20 mAmp	0-20000
0x4	Analog 0-5 Vdc	0-5000
0x5	Analog 0-10 Vdc	0-10000
0x6	Analog 0-32 Vdc	0-32000
0x9	Ratiometric input 100.0%	0-1000

Tab. 78: Art. DP-34044-1, DP-34044-2 (AI, Ratiom.) Read Analog INPUT 16-Bit INMODE#

10.3.7 Art. DP-34044-1, -2 (Freq., Count., Enc.) Read Analog INPUT 16-Bit

DP-34044-1, DP-34044-2

Read Analog INPUT 16-bit

Freq., Count, Enc.

	FREQUENCY MODE	COUNTER MODE	ENCODER MODE
FREQ_1	Hz Input7A	Count 7A	LSB: Byte 1
FREQ_2	DUTY Input7A	Set Point 7A	MSB: Byte 4
FREQ_3	Hz Input8A	Count 8A	0x0000
FREQ_4	DUTY Input8A	Set Point 8A	0x0000

Tab. 79: Art. DP-34044-1, DP-34044-2 (Freq., Count., Enc.) Read Analog INPUT 16-Bit

10.3.8 Art. DP-34044-1 Read Analog INPUT 16-Bit 6401

DP-34044-1
Read Analog INPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6401	1	Analog input 5A	Word	1		Not Used on this module, discrete only
				2		
	2	Analog input 5B		3		Analog Input 5B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				4		
	3	Analog input 6A		5		Not Used on this module, discrete only
				6		
	4	Analog Input 6B		7		Analog Input 6B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				8		
	5	Analog Input 7A		9		Not Used on this module, discrete only
				10		
	6	Analog Input 7B		11		Analog Input 7B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				12		
	7	Analog input 8A		13		Not Used on this module, discrete only
				14		
	8	Analog Input 8B		15		Analog Input 8B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				16		

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DP-34044-1
Read Analog INPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6401	9	Hertz_Count Input 7A	Word	17		Input 7A, "Hertz" is used when the input is configured as a frequency input, "Count" is used when the input is configured as a high speed counter
				18		
	10	Duty Cycle_ SP Input 7A		19		Input 7A, "Duty Cycle" is used when the input is configured as a frequency input, "Set Point" is used when the input is configured as a high speed counter
				20		
	11	Hertz_Count Input 8A		21		Input 8A, "Hertz" is used when the input is configured as a frequency input, "Count" is used when the input is configured as a high speed counter
				22		
	12	Duty Cycle_SP Input 8A		23		Input 8A, "Duty Cycle" is used when the input is configured as a frequency input, "Set Point" is used when the input is configured as a high speed counter
				24		

Tab. 80: Art. DP-34044-1 Module/Device Read Analog INPUT 16-Bit 6401

10.3.9 Art. DP-34044-2 Read Analog INPUT 16-Bit 6401

DP-34044-2
Read Analog INPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6401	1	Analog input 1A	Word	1		Not Used on this module, discrete only
				2		
	2	Analog input 1B		3		Analog Input 1B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				4		
	3	Analog input 2A		5		Not Used on this module, discrete only
				6		
	4	Analog Input 2B		7		Analog Input 2B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				8		
	5	Analog input 3A		9		Not Used on this module, discrete only
				10		
	6	Analog Input 3B		11		Analog Input 3B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				12		
	7	Analog input 4A		13		Not Used on this module, discrete only
				14		
	8	Analog Input 4B		15		Analog Input 4B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				16		

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DP-34044-2

Read Analog INPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6401	9	Analog input 5A	Word	17		Not Used on this module, discrete only
				18		
	10	Analog input 5B		19		Analog Input 5B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				20		
	11	Analog input 6A		21		Not Used on this module, discrete only
				22		
	12	Analog Input 6B		23		Analog Input 6B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				24		
	13	Analog Input 7A		25		Not Used on this module, discrete only
				26		
	14	Analog Input 7B		27		Analog Input 7B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				28		
	15	Analog input 8A		29		Not Used on this module, discrete only
				30		
	16	Analog Input 8B		31		Analog Input 8B, (4-20ma = 4,000-20,000) (0-5V DC = 0-5,000mv) (0-10V DC = 0-10,000mv) (0-32V DC = 0-32,000mv) (Ratiometric = 0-100.0% of source voltage)
				32		

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DP-34044-2
Read Analog INPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6401	17	Hertz_Count Input 7A	Word	33		Input 7A, "Hertz" is used when the input is configured as a frequency input, "Count" is used when the input is configured as a high speed counter
				34		
	18	Duty Cycle_ SP Input 7A		35		Input 7A, "Duty Cycle" is used when the input is configured as a frequency input, "Set Point" is used when the input is configured as a high speed counter
				36		
	19	Hertz_Count Input 8A		37		Input 8A, "Hertz" is used when the input is configured as a frequency input, "Count" is used when the input is configured as a high speed counter
				38		
	20	Duty Cycle_SP Input 8A		39		Input 8A, "Duty Cycle" is used when the input is configured as a frequency input, "Set Point" is used when the input is configured as a high speed counter
				40		

Tab. 81: Art. DP-34044-2 Module/Device Read Analog INPUT 16-Bit 6401

10.3.10 Art. DP-34044-1 Write Analog OUTPUT 16-Bit 6411

DP-34044-1
Write Analog OUTPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	16-bit
6411	1	PWM Ctrl Output 1A	12 bit	1	All	PWM Output 1A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				2	1,2,3,4	
	2	PWM Ctrl Output 1B		3	All	PWM Output 1B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				4	1,2,3,4	
	3	PWM Ctrl Output 2A		5	All	PWM Output 2A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				6	1,2,3,4	
	4	PWM Ctrl Output 2B		7	All	PWM Output 2B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				8	1,2,3,4	
	5	PWM Ctrl Output 3A		9	All	PWM Output 3A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				10	1,2,3,4	
	6	PWM Ctrl Output 3B		11	All	PWM Output 3B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				12	1,2,3,4	
	7	PWM Ctrl Output 4A		13	All	PWM Output 4A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				14	1,2,3,4	
	8	PWM Ctrl Output 4B		15	All	PWM Output 4B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				16	1,2,3,4	

Tab. 82: Art. DP-34044-1 Module/Device Write Analog OUTPUT 16-bit 6411

10.3.11 Art. DP-34044-3 Write Analog OUTPUT 16-Bit 6411

DP-34044-3
Write Analog OUTPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	16-bit
6411	1	PWM Ctrl Output 1A	12 bit	1	All	PWM Output 1A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				2	1,2,3,4	
	2	PWM Ctrl Output 1B		3	All	PWM Output 1B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				4	1,2,3,4	
	3	PWM Ctrl Output 2A		5	All	PWM Output 2A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				6	1,2,3,4	
	4	PWM Ctrl Output 2B		7	All	PWM Output 2B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				8	1,2,3,4	
	5	PWM Ctrl Output 3A		9	All	PWM Output 3A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				10	1,2,3,4	
	6	PWM Ctrl Output 3B		11	All	PWM Output 3B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				12	1,2,3,4	
	7	PWM Ctrl Output 4A		13	All	PWM Output 4A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				14	1,2,3,4	
	8	PWM Ctrl Output 4B		15	All	PWM Output 4B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				16	1,2,3,4	

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DP-34044-3
Write Analog OUTPUT 16-bit

Index	Sub-Index	Name	Data Type	Byte	Bits	16-bit
6411	9	PWM Ctrl Output 5A	12 bit	17	All	PWM Output 5A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				18	1,2,3,4	
	10	PWM Ctrl Output 5B		19	All	PWM Output 5B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				20	1,2,3,4	
	11	PWM Ctrl Output 6A		21	All	PWM Output 6A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				22	1,2,3,4	
	12	PWM Ctrl Output 6B		23	All	PWM Output 6B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				24	1,2,3,4	
	13	PWM Ctrl Output 7A		25	All	PWM Output 7A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				26	1,2,3,4	
	14	PWM Ctrl Output 7B		27	All	PWM Output 7B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				28	1,2,3,4	
	15	PWM Ctrl Output 8A		29	All	PWM Output 8A (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				30	1,2,3,4	
	16	PWM Ctrl Output 8B		31	All	PWM Output 8B (12 bit, uses the 1st byte and the first 4 bits of the 2nd byte)
				32	1,2,3,4	

Tab. 83: Art. DP-34044-3 Module/Device Write Analog OUTPUT 16-bit 6411

10.3.12 DP-34044-1, -2 Analog INPUT Global Interrupt Enable 6423

DP-34044-1, DP-34044-2

Analog INPUT Global Interrupt Enable

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6423	1	Interrupt Enable	1 bit	1	1	Analog Input Global Interrupt Enable

Tab. 84: DP-34044-1, -2 Analog INPUT Global Interrupt Enable 6423

10.3.13 DP-34044-1 Analog INPUT Interrupt Delta 6426

DP-34044-1

Analog INPUT Interrupt Delta

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6426	1	Port 5A	Byte	1		Delta PORT5A
	2	Port 5B		2		Delta PORT5B
	3	Port 6A		3		Delta PORT6A
	4	Port 6B		4		Delta PORT6B
	5	Port 7A		5		Delta PORT7A
	6	Port 7B		6		Delta PORT7B
	7	Port 8A		7		Delta PORT8A
	8	Port 8B		8		Delta PORT8B
	9	FREQ_1		9		Delta FREQ_1
	10	FREQ_2		10		Delta FREQ_2
	11	FREQ_3		11		Delta FREQ_3
	12	FREQ_4		12		Delta FREQ_4

Tab. 85: DP-34044-1 Analog INPUT Interrupt Delta 6426

10.3.14 DP-34044-2 Analog INPUT Interrupt Delta 6426

DP-34044-2 Analog INPUT Interrupt Delta

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
6426	1	Port 1A	Byte	1		Delta PORT1A
	2	Port 1B		2		Delta PORT1B
	3	Port 2A		3		Delta PORT2A
	4	Port 2B		4		Delta PORT2B
	5	Port 3A		5		Delta PORT3A
	6	Port 3B		6		Delta PORT3B
	7	Port 4A		7		Delta PORT4A
	8	Port 4B		8		Delta PORT4B
	9	Port 5A		9		Delta PORT5A
	10	Port 5B		10		Delta PORT5B
	11	Port 6A		11		Delta PORT6A
	12	Port 6B		12		Delta PORT6B
	13	Port 7A		13		Delta PORT7A
	14	Port 7B		14		Delta PORT7B
	15	Port 8A		15		Delta PORT8A
	16	Port 8B		16		Delta PORT8B
	17	FREQ_1		17		Delta FREQ_1
	18	FREQ_2		18		Delta FREQ_2
	19	FREQ_3		19		Delta FREQ_3
	20	FREQ_4		20		Delta FREQ_4

Tab. 86: DP-34044-2 Analog INPUT Interrupt Delta 6426

Link to: 8.5 I/O DI Configuration

10.4 HEARTBEAT

HEARTBEAT

Object 0x1017,

Sub-index 0

default 2000 ms

A heartbeat producer (the module) sends a heartbeat message cyclically. By default, the heartbeat producer time is set to 2000 ms. This can be changed by setting the time in object 0x1017, sub index 0.

The COB-ID used is 0x0700 + Node-ID.

The Hearbeat producer indicates its status in the first byte of the message.

The following values are possible:

- 0x00 BOOTUP
- 0x04 STOPPED
- 0x05 OPERATIONAL
- 0x7F PRE-OPERATIONAL

10.5 CAN Process Data Objects (PDO)

Overview Process Data Objects (PDOs)

Art. No.	Receive-PDO	Transmit-PDO	DI / AI	Status, Response and Error Messages
DP-34044-1-200	1	10	PDO 1 to 4 are used for the transmission of the digital and analog inputs.	PDO 5 to 10 are used for the transmission of status, response and error messages.
DP-34044-2-200	1	10	PDO 1 to 6 are used for the transmission of the digital and analog inputs.	PDO 7 to 10 are used for the transmission of status, response and error messages.
DP-34044-3-200	5	8		PDO 5 to 12 are used for the transmission of status, response and error messages.
DP-34044-5-200	1	6		PDO 5 to 10 are used for the transmission of status, response and error messages.

Tab. 87: Overview Process Data Objects (PDOs)

Status, Response and Error messages:

These PDOs are not transmitted by default.

The transmission rate of the PDOs can be changed via sub-index 5: Event Timer of the PDOs.

See chapter 10.8 CAN Store/Restore Parameters

The RPDO event timer sets the timeout. If the module does not receive an RPDO within the set event time, the output is switched off by timeout.

Transmission of the digital and analog inputs:

By default, the interrupt source 6423 is enabled and the mapped digital and analog input is sent when the state changes. Object 6426 sets the delta value which represents the difference to the last sent value. If the current value of the analog input is above or below this delta value, then the PDOs are sent. These values can be changed and stored. These PDOs can be set to a fixed transmission rate by setting the event timer of the corresponding PDO.

10.5.1 Art. DP-34044-1 Receive PDO 1400 ... 1402

DP-34044-1

Receive PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1400	6200	1-3	RPDO1	Digital Output	Write Ouputs 8 Bit	0x200+NodeID
1401	6411	1-4	RPDO2	Analog Output	Write Analog Ouptut 16 Bit	0x300+NodeID
1402	6411	5-8	RPDO3	Analog Output	Write Analog Ouptut 16 Bit	0x400+NodeID

Tab. 88: Art. DP-34044-1 Receive PDO 1400 ... 1402

10.5.2 Art. DP-34044-2 Receive PDO 1400

DP-34044-2

Receive PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1400	6200	1-3	RPDO1	Digital Output	Output On/Off	0x200+NodeID

Tab. 89: Art. DP-34044-2 Receive PDO 1400

10.5.3 Art. DP-34044-3 Receive PDO 1400 ... 1404

DP-34044-3

Receive PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1400	6200	1-3	RPDO1	Digital Output	Digital Output	0x200+NodeID
1401	6411	1-4	RPDO2	Analog Output	Analog Output	0x300+NodeID
1402	6411	5-8	RPDO3	Analog Output	Analog Output	0x400+NodeID
1403	6411	9-12	RPDO4	Analog Output	Analog Output	0x500+NodeID
1404	6411	13-16	RPDO5	Analog Output	Analog Output	0x220+NodeID

Tab. 90: Art. DP-34044-3 Receive PDO 1400 ... 1404

10.5.4 Art. DP-34044-5 Receive PDO 1400

DP-34044-5

Receive PDO

Index	Mapped index	Mapped Sub-Index	Object	Function	Message	COB ID
1400	6200	1-2	RPDO1	Digital Output	Output On/Off	0x200+NodeID

Tab. 91: Art. DP-34044-5 Receive PDO 1400

10.5.5 Art. DP-34044-1 Transmit PDO 1800 ... 1809

DP-34044-1

Transmit PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1800	6000	1-1	TPDO1	Digital Input	Read Input 8 bit	0x180+NodeID
1801	6401	1-4	TPDO2	Analog input	Read Analog Input 16 Bit	0x280+NodeID
1802	6401	5-8	TPDO3	Analog input	Read Analog Input 16 Bit	0x380+NodeID
1803	6401	9-12	TPDO4	Analog input	Read Analog Input 16 Bit	0x480+NodeID
1804	5000	1-4	TPDO5	Status Message	Response Message	0x1A0+NodeID
1805	5001	1-8	TPDO6	Status Message	Status Message 1	0x1C0+NodeID
1806	5002	1-4	TPDO7	Status Message	Status Message 2	0x1E0+NodeID
1807	5003	1-4	TPDO8	Status Message	Status Message Amp	0x2A0+NodeID
1808	5003	5-8	TPDO9	Status Message	Status Message Amp	0x2C0+NodeID
1809	5004	1-8	TPDO10	Fault Message	Fault Message	0x2E0+NodeID

Tab. 92: Art. DP-34044-1 Transmit PDO 1800 ... 1809

10.5.6 Art. DP-34044-2 Transmit PDO 1800 ... 1809

DP-34044-2

Transmit PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1800	6000	1-2	TPDO1	Digital Input	Read Input 8 bit	0x180+NodeID
1801	6401	1-4	TPDO2	Analog Input	Read Analog Input 16 Bit	0x280+NodeID
1802	6401	5-8	TPDO3	Analog Input	Read Analog Input 16 Bit	0x380+NodeID
1803	6401	9-12	TPDO4	Analog Input	Read Analog Input 16 Bit	0x480+NodeID
1804	6401	13-16	TPDO5	Analog Input	Read Analog Input 16 Bit	0x1A0+NodeID
1805	6401	17-20	TPDO6	Analog Input	Read Analog Input 16 Bit	0x1C0+NodeID
1806	5000	1-4	TPDO7	Status Message	Response Message	0x1E0+NodeID
1807	5001	1-8	TPDO8	Status Message	Status Message 1	0x2A0+NodeID
1808	5002	1-4	TPDO9	Status Message	Status Message 2	0x2C0+NodeID
1809	5004	1-8	TPDO10	Fault Message	Fault Message	0x2E0+NodeID

Tab. 93: Art. DP-34044-2 Transmit PDO 1800 ... 1809

10.5.7 Art. DP-34044-3 Transmit PDO 1804 ... 180B

DP-34044-3

Transmit PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1804	5000	1-4	TPDO5	PropA Response	Response Message	0x1A0+NodeID
1805	5001	1-8	TPDO6	Status Message	Status Message F1	0x1C0+NodeID
1806	5002	1-4	TPDO7	Status Message	Status Message F2	0x1E0+NodeID
1807	5003	1-4	TPDO8	Status Message	Status Message Amp Data	0x2A0+NodeID
1808	5003	5-8	TPDO9	Status Message	Status Message Amp Data	0x2C0+NodeID
1809	5003	9-12	TPDO10	Status Message	Status Message Amp Data	0x2E0+NodeID
180A	5003	13-16	TPDO11	Status Message	Status Message Amp Data	0x3A0+NodeID
180B	5004	1-8	TPDO12	Fault Message	Fault Message	0x3C0+NodeID

Tab. 94: Art. DP-34044-3 Transmit PDO 1804 ... 180B

10.5.8 Art. DP-34044-5 Transmit PDO 1804 ... 1809

DP-34044-5

Transmit PDO

Index	Mapped Index	Mapped Sub-Index	Object	Function	Message	COB ID
1804	5000	1-4	TPDO5	PropA Response	Response Message	0x1A0+NodeID
1805	5001	1-8	TPDO6	Status Message	Status Message F1	0x1C0+NodeID
1806	5002	1-4	TPDO7	Status Message	Status Message F2	0x1E0+NodeID
1807	5003	1-8	TPDO8	Status Message	Status Message Amp Data	0x2A0+NodeID
1808	5003	9-16	TPDO9	Status Message	Status Message Amp Data	0x2C0+NodeID
1809	5004	1-8	TPDO10	Fault Message	Fault Message	0x2E0+NodeID

Tab. 95: Art. DP-34044-5 Transmit PDO 1804 ... 1809

10.6 CAN MANUFACTURER SEGMENT

10.6.1 Art. DP-34044-1 Manufacturer Segment 2000 ... 5004

DP-34044-1

Manufacturer Segment

d1 - d16

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2000	Module Global Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x05
		1	UNSIGNED8	d1 - d8_Enable	RW	0x00
		2	UNSIGNED8	d9 - d16_Enable	RW	0x00
		3	UNSIGNED8	Output_Mode	RW	0x01
		4	UNSIGNED8	Input_Mode	RW	0x01
		5	UNSIGNED8	ID	RW	0x00
2001	Module IO Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	OUTMODE_1	RW	0x11
		2	UNSIGNED8	OUTMODE_2	RW	0x11
		3	UNSIGNED8	OUTMODE_3	RW	0x11
		4	UNSIGNED8	OUTMODE_4	RW	0x11
		5	UNSIGNED8	INMODE_5	RW	0x11
		6	UNSIGNED8	INMODE_6	RW	0x11
		7	UNSIGNED8	INMODE_7	RW	0x11
		8	UNSIGNED8	INMODE_8	RW	0x11

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Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2002	Module PWM(i) PID Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x10
		1	UNSIGNED8	Port1A_Kp	RW	0x64
		2	UNSIGNED8	Port1A_Ki	RW	0x64
		3	UNSIGNED8	Port1B_Kp	RW	0x64
		4	UNSIGNED8	Port1B_Ki	RW	0x64
		5	UNSIGNED8	Port2A_Kp	RW	0x64
		6	UNSIGNED8	Port2A_Ki	RW	0x64
		7	UNSIGNED8	Port2B_Kp	RW	0x64
		8	UNSIGNED8	Port2B_Ki	RW	0x64
		9	UNSIGNED8	Port3A_Kp	RW	0x64
		10	UNSIGNED8	Port3A_Ki	RW	0x64
		11	UNSIGNED8	Port3B_Kp	RW	0x64
		12	UNSIGNED8	Port3B_Ki	RW	0x64
		13	UNSIGNED8	Port4A_Kp	RW	0x64
		14	UNSIGNED8	Port4A_Ki	RW	0x64
		15	UNSIGNED8	Port4B_Kp	RW	0x64
		16	UNSIGNED8	Port4B_Ki	RW	0x64
2003	Modules Counter Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x02
		1	UNSIGNED8	d1 - d8	RW	0x00
		2	UNSIGNED8	d9 - d16	RW	0x00
3000	Frequency		UNSIGNED16		RW	0x41
3001	Set Point	0	UNSIGNED16	Highest sub-index supported	RW	0x02
		1	UNSIGNED16	Set_Point_7A	RW	0x0000
		2	UNSIGNED16	Set_Point_8A	RW	0x0000
5000	Response Message	0	UNSIGNED8	Highest sub-index supported	RW	0x04
		1	UNSIGNED8	d1-d8	RO	0x00
		2	UNSIGNED8	d9-d16	RO	0x00
		3	UNSIGNED8	Active_Fault_Code	RO	0x00
		4	UNSIGNED8	Configuration_ID	RO	0x00
5001	Status Message F1	0	UNSIGNED8	Highest sub-index supported	RW	0x08

DP-34044-1

Manufacturer Segment

Link to 10.9.3

Art. DP-34044-1 Status Message F1 5001

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
		1	UNSIGNED8	d1-d8_Message	RO	0x00
		2	UNSIGNED8	d9-d16_Message	RO	0x00
		3	UNSIGNED8	Status_Output1-2	RO	0x00
		4	UNSIGNED8	Status_Output3-4	RO	0x00
		5	UNSIGNED8	Sensor_Power5-6	RO	0x00
		6	UNSIGNED8	Sensor_Power7-8	RO	0x00
		7	UNSIGNED8	Power	RO	0x00
		8	UNSIGNED8	Save_Counter	RO	0x00
5002	Status Message F2	0	UNSIGNED16	Highest sub-index supported	RW	0x05
		1	UNSIGNED16	VBAT	RO	0x00
		2	UNSIGNED16	TEMP	RO	0x00
		3	UNSIGNED16	CNFG1	RO	0x00
		4	UNSIGNED16	CNFG2	RO	0x00
		5	UNSIGNED16	CNFG3	RO	0x00
5003	Status Message Amp Data	0	UNSIGNED16	Highest sub-index supported	RW	0x08
		1	UNSIGNED16	Port_1A	RO	0x0000
		2	UNSIGNED16	Port_1B	RO	0x0000
		3	UNSIGNED16	Port_2A	RO	0x0000
		4	UNSIGNED16	Port_2B	RO	0x0000
		5	UNSIGNED16	Port_3A	RO	0x0000
		6	UNSIGNED16	Port_3B	RO	0x0000
		7	UNSIGNED16	Port_4A	RO	0x0000
		8	UNSIGNED16	Port_4B	RO	0x0000

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Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
5004	Fault Message	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	Counter_F1	RO	0x00
		2	UNSIGNED8	Counter_F2	RO	0x00
		3	UNSIGNED8	Counter_F3	RO	0x00
		4	UNSIGNED8	Counter_F4	RO	0x00
		5	UNSIGNED8	Counter_F5	RO	0x00
		6	UNSIGNED8	Counter_F6	RO	0x00
		7	UNSIGNED8	Counter_F7	RO	0x00
		8	UNSIGNED8	Counter_F8	RO	0x00

Tab. 96: Art. DP-34044-1 Manufacturer Segment 2000 ... 5004

10.6.2 Art. DP-34044-2 Manufacturer Segment 2000 ... 5004

DP-34044-2

Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2000	Module Input Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x04
		1	UNSIGNED8	d1 - d8_Enable	RW	0x00
		2	UNSIGNED8	d9 - d16_Enable	RW	0x00
		3	UNSIGNED8	Output_Mode	RW	0x01
		4	UNSIGNED8	ID	RW	0x00
2001	Module Input Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	INMODE_1	RW	0x11
		2	UNSIGNED8	INMODE_2	RW	0x11
		3	UNSIGNED8	INMODE_3	RW	0x11
		4	UNSIGNED8	INMODE_4	RW	0x11
		5	UNSIGNED8	INMODE_5	RW	0x11
		6	UNSIGNED8	INMODE_6	RW	0x11
		7	UNSIGNED8	INMODE_7	RW	0x11
		8	UNSIGNED8	INMODE_8	RW	0x11

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Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2003	Modules Counter Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x02
		1	UNSIGNED8	Counter_7A	RW	0x00
		2	UNSIGNED8	Counter_8A	RW	0x00
2005	Set Point	0	UNSIGNED16	Highest sub-index supported	RW	0x02
		1	UNSIGNED16	Set_Point_7A	RW	0x0000
		2	UNSIGNED16	Set_Point_8A	RW	0x0000
5000	Response Message	0	UNSIGNED8	Highest sub-index supported	RW	0x04
		1	UNSIGNED8	d1-d8	RO	0x00
		2	UNSIGNED8	d9-d16	RO	0x00
		3	UNSIGNED8	Active_Fault_Code	RO	0x00
		4	UNSIGNED8	Configuration_ID	RO	0x00
5001	Status Message F1	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	d1-d8_Message	RO	0x00
		2	UNSIGNED8	d9-d16_Message	RO	0x00
		3	UNSIGNED8	Sensor_Power1-2	RO	0x00
		4	UNSIGNED8	Sensor_Power3-4	RO	0x00
		5	UNSIGNED8	Sensor_Power5-6	RO	0x00
		6	UNSIGNED8	Sensor_Power7-8	RO	0x00
		7	UNSIGNED8	Power	RO	0x00
		8	UNSIGNED8	Save_Counter	RO	0x00

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Link to 10.9.4

Art. DP-34044-2 Status Message F1 5001

DP-34044-2

Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
5002	Status Message F2	0	UNSIGNED16	Highest sub-index supported	RW	0x05
		1	UNSIGNED16	VBAT	RO	0x00
		2	UNSIGNED16	TEMP	RO	0x00
		3	UNSIGNED16	CNFG1	RO	0x00
		4	UNSIGNED16	CNFG2	RO	0x00
		5	UNSIGNED16	CNFG3	RO	0x00
5004	Fault Message	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	Counter_F1	RO	0x00
		2	UNSIGNED8	Counter_F2	RO	0x00
		3	UNSIGNED8	Counter_F3	RO	0x00
		4	UNSIGNED8	Counter_F4	RO	0x00
		5	UNSIGNED8	Counter_F5	RO	0x00
		6	UNSIGNED8	Counter_F6	RO	0x00
		7	UNSIGNED8	Counter_F7	RO	0x00
		8	UNSIGNED8	Counter_F8	RO	0x00

Tab. 97: Art. DP-34044-2 Manufacturer Segment 2000 ... 5004

10.6.3 Art. DP-34044-3 Manufacturer Segment 2000 ... 5004

DP-34044-3

Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2000	Module Global Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x04
		1	UNSIGNED8	d1 - d8_Enable	RW	0x00
		2	UNSIGNED8	d9 - d16_Enable	RW	0x00
		3	UNSIGNED8	Output_Mode	RW	0x01
		4	UNSIGNED8	ID	RW	0x00
2001	Module Output Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	OUTMODE_1	RW	0x11
		2	UNSIGNED8	OUTMODE_2	RW	0x11
		3	UNSIGNED8	OUTMODE_3	RW	0x11
		4	UNSIGNED8	OUTMODE_4	RW	0x11
		5	UNSIGNED8	OUTMODE_5	RW	0x11
		6	UNSIGNED8	OUTMODE_6	RW	0x11
		7	UNSIGNED8	OUTMODE_7	RW	0x11
		8	UNSIGNED8	OUTMODE_8	RW	0x11

➔ Continued on the next page

DP-34044-3

Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2002	Module PWM(i) PID Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x20
		1	UNSIGNED8	Port1A_Kp	RW	0x64
		2	UNSIGNED8	Port1A_Ki	RW	0x64
		3	UNSIGNED8	Port1B_Kp	RW	0x64
		4	UNSIGNED8	Port1B_Ki	RW	0x64
		5	UNSIGNED8	Port2A_Kp	RW	0x64
		6	UNSIGNED8	Port2A_Ki	RW	0x64
		7	UNSIGNED8	Port2B_Kp	RW	0x64
		8	UNSIGNED8	Port2B_Ki	RW	0x64
		9	UNSIGNED8	Port3A_Kp	RW	0x64
		10	UNSIGNED8	Port3A_Ki	RW	0x64
		11	UNSIGNED8	Port3B_Kp	RW	0x64
		12	UNSIGNED8	Port3B_Ki	RW	0x64
		13	UNSIGNED8	Port4A_Kp	RW	0x64
		14	UNSIGNED8	Port4A_Ki	RW	0x64
		15	UNSIGNED8	Port4B_Kp	RW	0x64
		16	UNSIGNED8	Port4B_Ki	RW	0x64
		17	UNSIGNED8	Port5A_Kp	RW	0x64
		18	UNSIGNED8	Port5A_Ki	RW	0x64
		19	UNSIGNED8	Port5B_Kp	RW	0x64
		20	UNSIGNED8	Port5B_Ki	RW	0x64
		21	UNSIGNED8	Port6A_Kp	RW	0x64
		22	UNSIGNED8	Port6A_Ki	RW	0x64
		23	UNSIGNED8	Port6B_Kp	RW	0x64
		24	UNSIGNED8	Port6B_Ki	RW	0x64
		25	UNSIGNED8	Port7A_Kp	RW	0x64
		26	UNSIGNED8	Port7A_Ki	RW	0x64
		27	UNSIGNED8	Port7B_Kp	RW	0x64
		28	UNSIGNED8	Port7B_Ki	RW	0x64
		29	UNSIGNED8	Port8A_Kp	RW	0x64
		30	UNSIGNED8	Port8A_Ki	RW	0x64
		31	UNSIGNED8	Port8B_Kp	RW	0x64
		32	UNSIGNED8	Port8B_Ki	RW	0x64
2004	Modules 10A LimitConfiguration	0	UNSIGNED8	Highest sub-index supported	RW	0x02
		1	UNSIGNED8	Port_1A	RW	0x64
		2	UNSIGNED8	Port_3A	RW	0x64

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Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
3000	Frequency		UNSIGNED16		RW	0x41
5000	Response Message	0	UNSIGNED8	Highest sub-index supported	RW	0x04
		1	UNSIGNED8	d1-d8	RO	0x00
		2	UNSIGNED8	d9-d16	RO	0x00
		3	UNSIGNED8	Active_Fault_Code	RO	0x00
		4	UNSIGNED8	Configuration_ID	RO	0x00
5001	Status Message F1	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	d1-d8_Message	RO	0x00
		2	UNSIGNED8	d9-d16_Message	RO	0x00
		3	UNSIGNED8	Status_Output1-2	RO	0x00
		4	UNSIGNED8	Status_Output3-4	RO	0x00
		5	UNSIGNED8	Sensor_Power5-6	RO	0x00
		6	UNSIGNED8	Sensor_Power7-8	RO	0x00
		7	UNSIGNED8	Power	RO	0x00
		8	UNSIGNED8	Save_Counter	RO	0x00
5002	Status Message F2	0	UNSIGNED16	Highest sub-index supported	RW	0x05
		1	UNSIGNED16	VBAT	RO	0x0000
		2	UNSIGNED16	TEMP	RO	0x0000
		3	UNSIGNED16	CNFG1	RO	0x0000
		4	UNSIGNED16	CNFG2	RO	0x0000
		5	UNSIGNED16	CNFG3	RO	0x0000

Link to 10.9.5

Art. DP-34044-3 Status message F1 5001

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DP-34044-3

Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
5003	Status Message Amp Data	0	UNSIGNED16	Highest sub-index supported	RW	0x10
		1	UNSIGNED16	Port_1A	RO	0x0000
		2	UNSIGNED16	Port_1B	RO	0x0000
		3	UNSIGNED16	Port_2A	RO	0x0000
		4	UNSIGNED16	Port_2B	RO	0x0000
		5	UNSIGNED16	Port_3A	RO	0x0000
		6	UNSIGNED16	Port_3B	RO	0x0000
		7	UNSIGNED16	Port_4A	RO	0x0000
		8	UNSIGNED16	Port_4B	RO	0x0000
		9	UNSIGNED16	Port_5A	RO	0x0000
		10	UNSIGNED16	Port_5B	RO	0x0000
		11	UNSIGNED16	Port_6A	RO	0x0000
		12	UNSIGNED16	Port_6B	RO	0x0000
		13	UNSIGNED16	Port_7A	RO	0x0000
		14	UNSIGNED16	Port_7B	RO	0x0000
		15	UNSIGNED16	Port_8A	RO	0x0000
		16	UNSIGNED16	Port_8B	RO	0x0000
5004	Fault Message	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	Counter_F1	RO	0x00
		2	UNSIGNED8	Counter_F2	RO	0x00
		3	UNSIGNED8	Counter_F3	RO	0x00
		4	UNSIGNED8	Counter_F4	RO	0x00
		5	UNSIGNED8	Counter_F5	RO	0x00
		6	UNSIGNED8	Counter_F6	RO	0x00
		7	UNSIGNED8	Counter_F7	RO	0x00
		8	UNSIGNED8	Counter_F8	RO	0x00

Tab. 98: Art. DP-34044-3 Manufacturer Segment 2000 ... 5004

10.6.4 Art. DP-34044-5 Manufacturer Segment 2000 ... 5004

DP-34044-5

Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
2000	Module Global Configuration	0	UNSIGNED8	Highest sub-index supported	RW	0x03
		1	UNSIGNED8	d1 - d8_Enable	RW	0x00
		2	UNSIGNED8	d9 - d16_Enable	RW	0x00
		3	UNSIGNED8	ID	RW	0x00
2004	Modules 10A LimitConfiguration	0	UNSIGNED8	Highest sub-index supported	RW	0x02
		1	UNSIGNED8	Port_1A	RW	0x64
		2	UNSIGNED8	Port_3A	RW	0x64
5000	Response Message	0	UNSIGNED8	Highest sub-index supported	RW	0x04
		1	UNSIGNED8	d1-d8	RO	0x00
		2	UNSIGNED8	d9-d16	RO	0x00
		3	UNSIGNED8	Active_Fault_Code	RO	0x00
		4	UNSIGNED8	Configuration_ID	RO	0x00
5001	Status Message F1	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	d1-d8_Message	RO	0x00
		2	UNSIGNED8	d9-d16_Message	RO	0x00
		3	UNSIGNED8	Status_Output1-2	RO	0x00
		4	UNSIGNED8	Status_Output3-4	RO	0x00
		5	UNSIGNED8	Sensor_Power5-6	RO	0x00
		6	UNSIGNED8	Sensor_Power7-8	RO	0x00
		7	UNSIGNED8	Power	RO	0x00
		8	UNSIGNED8	Save_Counter	RO	0x00

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Link to 10.9.6

Art. DP-34044-5 Status Message F1 5001

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Manufacturer Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
5002	Status Message F2	0	UNSIGNED16	Highest sub-index supported	RW	0x05
		1	UNSIGNED16	VBAT	RO	0x0000
		2	UNSIGNED16	TEMP	RO	0x0000
		3	UNSIGNED16	CNFG1	RO	0x0000
		4	UNSIGNED16	CNFG2	RO	0x0000
		5	UNSIGNED16	CNFG3	RO	0x0000
5003	Status Message Amp Data	0	UNSIGNED16	Highest sub-index supported	RW	0x10
		1	UNSIGNED16	Port_1A	RO	0x00
		2	UNSIGNED16	Port_1B	RO	0x00
		3	UNSIGNED16	Port_2A	RO	0x00
		4	UNSIGNED16	Port_2B	RO	0x00
		5	UNSIGNED16	Port_3A	RO	0x00
		6	UNSIGNED16	Port_3B	RO	0x00
		7	UNSIGNED16	Port_4A	RO	0x00
		8	UNSIGNED16	Port_4B	RO	0x00
		9	UNSIGNED16	Port_5A	RO	0x00
		10	UNSIGNED16	Port_5B	RO	0x00
		11	UNSIGNED16	Port_6A	RO	0x00
		12	UNSIGNED16	Port_6B	RO	0x00
		13	UNSIGNED16	Port_7A	RO	0x00
		14	UNSIGNED16	Port_7B	RO	0x00
		15	UNSIGNED16	Port_8A	RO	0x00
		16	UNSIGNED16	Port_8B	RO	0x00
5004	Fault Message	0	UNSIGNED8	Highest sub-index supported	RW	0x08
		1	UNSIGNED8	Counter_F1	RO	0x00
		2	UNSIGNED8	Counter_F2	RO	0x00
		3	UNSIGNED8	Counter_F3	RO	0x00
		4	UNSIGNED8	Counter_F4	RO	0x00
		5	UNSIGNED8	Counter_F5	RO	0x00
		6	UNSIGNED8	Counter_F6	RO	0x00
		7	UNSIGNED8	Counter_F7	RO	0x00
		8	UNSIGNED8	Counter_F8	RO	0x00

Tab. 99: Art. DP-34044-5 Manufacturer Segment 2000 ... 5004

10.7 CAN Module/Device Profile Segment

10.7.1 Art. DP-34044-1 Module/Device Profile Segment 6000 ... 6426

DP-34044-1

Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6000	Read Input 8-bit	0	UNSIGNED8	Highest sub-index supported	RW	0x01
		1	UNSIGNED8	Input_1	RO	0x00
6200	Write Outputs 8-Bit	0	UNSIGNED8	Highest sub-index supported	RW	0x03
		1	UNSIGNED8	Output_1	RWW	0x00
		2	UNSIGNED8	Output_2	RWW	0x00
		3	UNSIGNED8	Sensor_1	RWW	0x00
6401	Read Analog Input 16-bit	0	INTEGER16	Highest sub-index supported	RW	0x0C
		1	INTEGER16	Port 5A	RO	0x0000
		2	INTEGER16	Port 5B	RO	0x0000
		3	INTEGER16	Port 6A	RO	0x0000
		4	INTEGER16	Port 6B	RO	0x0000
		5	INTEGER16	Port 7A	RO	0x0000
		6	INTEGER16	Port 7B	RO	0x0000
		7	INTEGER16	Port 8A	RO	0x0000
		8	INTEGER16	Port 8B	RO	0x0000
		9	INTEGER16	FREQ_1	RO	0x0000
		10	INTEGER16	FREQ_2	RO	0x0000
		11	INTEGER16	FREQ_3	RO	0x0000
		12	INTEGER16	FREQ_4	RO	0x0000
6411	Write Analog Output 16-bit	0	INTEGER16	Highest sub-index supported	RW	0x08
		1	INTEGER16	Port_1A	RWW	0x0000
		2	INTEGER16	Port_1B	RWW	0x0000
		3	INTEGER16	Port_2A	RWW	0x0000
		4	INTEGER16	Port_2B	RWW	0x0000
		5	INTEGER16	Port_3A	RWW	0x0000
		6	INTEGER16	Port_3B	RWW	0x0000
		7	INTEGER16	Port_4A	RWW	0x0000
		8	INTEGER16	Port_4B	RWW	0x0000

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Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6423	Analog Input Global Interrupt Enable		BOOLEAN		RW	0x01
6426	Analog Input Interrupt Delta	0	UNSIGNED16	Highest sub-index supported	RW	0x0C
		1	UNSIGNED16	Port 5A	RW	0x0032
		2	UNSIGNED16	Port 5B	RW	0x0032
		3	UNSIGNED16	Port 6A	RW	0x0032
		4	UNSIGNED16	Port 6B	RW	0x0032
		5	UNSIGNED16	Port 7A	RW	0x0032
		6	UNSIGNED16	Port 7B	RW	0x0032
		7	UNSIGNED16	Port 8A	RW	0x0032
		8	UNSIGNED16	Port 8B	RW	0x0032
		9	UNSIGNED16	FREQ_1	RW	0x0032
		10	UNSIGNED16	FREQ_2	RW	0x0032
		11	UNSIGNED16	FREQ_3	RW	0x0032
		12	UNSIGNED16	FREQ_4	RW	0x0032

Tab. 100: Art. DP-34044-1 Module/Device Profile Segment 6000 ... 6426

10.7.2 Art. DP-34044-2 Module/Device Profile Segment 6000 ... 6426

DP-34044-2

Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6000	Read Input 8-bit	0	UNSIGNED8	Highest sub-index supported	RW	0x01
		1	UNSIGNED8	Input_1	RO	0x00
		2	UNSIGNED8	Input_2	RO	0x00
6200	Write Outputs 8-Bit	0	UNSIGNED8	Highest sub-index supported	RW	0x03
		1	UNSIGNED8	Output_1	RWW	0x00
		2	UNSIGNED8	Output_2	RWW	0x00
		3	UNSIGNED8	Sensor_1	RWW	0x00

➔ Continued on the next page

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Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6401	Read Analog Input 16-bit	0	INTEGER16	Highest sub-index supported	RW	0x14
		1	INTEGER16	Port 1A	RO	0x00
		2	INTEGER16	Port 1B	RO	0x00
		3	INTEGER16	Port 2A	RO	0x00
		4	INTEGER16	Port 2B	RO	0x00
		5	INTEGER16	Port 3A	RO	0x00
		6	INTEGER16	Port 3B	RO	0x00
		7	INTEGER16	Port 4A	RO	0x00
		8	INTEGER16	Port 4B	RO	0x00
		9	INTEGER16	Port 5A	RO	0x00
		10	INTEGER16	Port 5B	RO	0x00
		11	INTEGER16	Port 6A	RO	0x00
		12	INTEGER16	Port 6B	RO	0x00
		13	INTEGER16	Port 7A	RO	0x00
		14	INTEGER16	Port 7B	RO	0x00
		15	INTEGER16	Port 8A	RO	0x00
		16	INTEGER16	Port 8B	RO	0x00
		17	INTEGER16	FREQ_1	RO	0x00
		18	INTEGER16	FREQ_2	RO	0x00
		19	INTEGER16	FREQ_3	RO	0x00
		20	INTEGER16	FREQ_4	RO	0x00
6423	Analog Input Global Interrupt Enable		BOOLEAN		RW	0x01

➔ Continued on the next page

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Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6426	Analog Input Interrupt Delta	0	UNSIGNED16	Highest sub-index supported	RW	0x14
		1	UNSIGNED16	Port 1A	RW	0x0032
		2	UNSIGNED16	Port 1B	RW	0x0032
		3	UNSIGNED16	Port 2A	RW	0x0032
		4	UNSIGNED16	Port 2B	RW	0x0032
		5	UNSIGNED16	Port 3A	RW	0x0032
		6	UNSIGNED16	Port 3B	RW	0x0032
		7	UNSIGNED16	Port 4A	RW	0x0032
		8	UNSIGNED16	Port 4B	RW	0x0032
		9	UNSIGNED16	Port 5A	RW	0x0032
		10	UNSIGNED16	Port 5B	RW	0x0032
		11	UNSIGNED16	Port 6A	RW	0x0032
		12	UNSIGNED16	Port 6B	RW	0x0032
		13	UNSIGNED16	Port 7A	RW	0x0032
		14	UNSIGNED16	Port 7B	RW	0x0032
		15	UNSIGNED16	Port 8A	RW	0x0032
		16	UNSIGNED16	Port 8B	RW	0x0032
		17	UNSIGNED16	FREQ_1	RW	0x0032
		18	UNSIGNED16	FREQ_2	RW	0x0032
		19	UNSIGNED16	FREQ_3	RW	0x0032
		20	UNSIGNED16	FREQ_4	RW	0x0032

Tab. 101: Art. DP-34044-2 Module/Device Profile Segment 6000 ... 6426

10.7.3 Art. DP-34044-3 Module/Device Profile Segment 6200 ... 6411

DP-34044-3 Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6200	Write Outputs 8-Bit	0	UNSIGNED8	Highest sub-index supported	RW	0x02
		1	UNSIGNED8	Output_1	RWW	0x00
		2	UNSIGNED8	Output_2	RWW	0x00
6411	Write Analog Output 16-bit	0	UNSIGNED8	Highest sub-index supported	RW	0x10
		1	UNSIGNED8	Port_1A	RWW	0x0000
		2	UNSIGNED8	Port_1B	RWW	0x0000
		3	UNSIGNED8	Port_2A	RWW	0x0000
		4	UNSIGNED8	Port_2B	RWW	0x0000
		5	UNSIGNED8	Port_3A	RWW	0x0000
		6	UNSIGNED8	Port_3B	RWW	0x0000
		7	UNSIGNED8	Port_4A	RWW	0x0000
		8	UNSIGNED8	Port_4B	RWW	0x0000
		9	UNSIGNED8	Port_5A	RWW	0x0000
		10	UNSIGNED8	Port_5B	RWW	0x0000
		11	UNSIGNED8	Port_6A	RWW	0x0000
		12	UNSIGNED8	Port_6B	RWW	0x0000
		13	UNSIGNED8	Port_7A	RWW	0x0000
		14	UNSIGNED8	Port_7B	RWW	0x0000
		15	UNSIGNED8	Port_8A	RWW	0x0000
		16	UNSIGNED8	Port_8B	RWW	0x0000

Tab. 102: Art. DP-34044-3 Module/Device Profile Segment 6200 ... 6411

10.7.4 Art. DP-34044-5 Module/Device Profile Segment 6200

DP-34044-5 Module/Device Profile Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
6200	Write Outputs 8-Bit	0	UNSIGNED8	Highest sub-index supported	RW	0x02
		1	UNSIGNED8	Output_1	RWW	0x00
		2	UNSIGNED8	Output_2	RWW	0x00

Tab. 103: Art. DP-34044-5 Module/Device Profile Segment 6200

10.8 CAN Store/Restore Parameters

Store Parameters

The user can save application settings by writing the value 0x65766173 to the object index 0x1010. The last saved settings are automatically loaded at boot time.

Restore Parameters

Factory Setting

To restore the factory **default values**, the value 0x64616F6C is written to the object index 0x1011.

➔ In addition, a restart (voltage reset) is necessary.

The following tables list the objects that are saved:

10.8.1 Art. DP-34044-1 Store/Restore Parameters 1015 ... 3000

DP-34044-1

Store/Restore Parameters

Index	Sub-Index	Name	Default Value
1015	-	Inhibit Time Emergency	0
1017	-	Producer Heartbeat Time	2000
1400	5	Event Timer	0
1401	5	Event Timer	0
1402	5	Event Timer	0
1800	5	Event Timer	0
1801	5	Event Timer	0
1802	5	Event Timer	0
1803	5	Event Timer	0
1804	5	Event Timer	0
1805	5	Event Timer	0
1806	5	Event Timer	0
1807	5	Event Timer	0
1808	5	Event Timer	0
1809	5	Event Timer	0
6423	-	Interrupt Enable	0x00
6426	1	Port 5A	0x32
	2	Port 5B	0x32
	3	Port 6A	0x32
	4	Port 6B	0x32
	5	Port 7A	0x32
	6	Port 7B	0x32
	7	Port 8A	0x32
	8	Port 8B	0x32
	9	FREQ_1	0x32
	10	FREQ_2	0x32
	11	FREQ_3	0x32
	12	FREQ_4	0x32
2000	1	d1 - d8_Enable	0
	2	d9 - d16_Enable	0
	3	Output_Mode	1
	4	Input_Mode	1
	5	ID	0

➔ Continued on the next page

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Store/Restore Parameters

Index	Sub-Index	Name	Default Value
2001	1	OUTMODE_1	0x11
	2	OUTMODE_2	0x11
	3	OUTMODE_3	0x11
	4	OUTMODE_4	0x11
	5	INMODE_5	0x11
	6	INMODE_6	0x11
	7	INMODE_7	0x11
	8	INMODE_8	0x11
2002	1	Port1A_Kp	0x64
	2	Port1A_Ki	0x64
	3	Port1B_Kp	0x64
	4	Port1B_Ki	0x64
	5	Port2A_Kp	0x64
	6	Port2A_Ki	0x64
	7	Port2B_Kp	0x64
	8	Port2B_Ki	0x64
	9	Port3A_Kp	0x64
	10	Port3A_Ki	0x64
	11	Port3B_Kp	0x64
	12	Port3B_Ki	0x64
	13	Port4A_Kp	0x64
	14	Port4A_Ki	0x64
	15	Port4B_Kp	0x64
	16	Port4B_Ki	0x64
3000	1	Frequency	0x41

Tab. 104: Art. DP-34044-1 Store/Restore Parameters 1015 ... 3000

10.8.2 Art. DP-34044-2 Store/Restore Parameters 1015 ... 3000

DP-34044-2

Store/Restore Parameters

Index	Sub-Index	Name	Default Value
1015	0	Inhibit Time Emergency	0
1017	0	Producer Heartbeat Time	0x7D0
1400	5	Event Timer	0
1800	5	Event Timer	0
1801	5	Event Timer	0
1802	5	Event Timer	0
1803	5	Event Timer	0
1804	5	Event Timer	0
1805	5	Event Timer	0
1806	5	Event Timer	0
1807	5	Event Timer	0
1808	5	Event Timer	0
1809	5	Event Timer	0
6423	-	Interrupt Enable	0x00
6426	1	Port_1A	0x32
	2	Port_1B	0x32
	3	Port_2A	0x32
	4	Port_2B	0x32
	5	Port_3A	0x32
	6	Port_3B	0x32
	7	Port_4A	0x32
	8	Port_4B	0x32
	9	Port_5A	0x32
	10	Port_5B	0x32
	11	Port_6A	0x32
	12	Port_6B	0x32
	13	Port_7A	0x32
	14	Port_7B	0x32
	15	Port_8A	0x32
	16	Port_8B	0x32
	17	FREQ_1	0x32
	18	FREQ_2	0x32
	19	FREQ_3	0x32
	20	FREQ_4	0x32

➔ Continued on the next page

DP-34044-2

Store/Restore Parameters

Index	Sub-Index	Name	Default Value
2000	1	d1 - d8_Enable	0
	2	d9 - d16_Enable	0
	3	Input_Mode	1
	4	ID	0
2001	1	INMODE_1	0x11
	2	INMODE_2	0x11
	3	INMODE_3	0x11
	4	INMODE_4	0x11
	5	INMODE_5	0x11
	6	INMODE_6	0x11
	7	INMODE_7	0x11
	8	INMODE_8	0x11
2002	1	Port1A_Kp	0x64
	2	Port1A_Ki	0x64
	3	Port1B_Kp	0x64
	4	Port1B_Ki	0x64
	5	Port2A_Kp	0x64
	6	Port2A_Ki	0x64
	7	Port2B_Kp	0x64
	8	Port2B_Ki	0x64
	9	Port3A_Kp	0x64
	10	Port3A_Ki	0x64
	11	Port3B_Kp	0x64
	12	Port3B_Ki	0x64
	13	Port4A_Kp	0x64
	14	Port4A_Ki	0x64
	15	Port4B_Kp	0x64
	16	Port4B_Ki	0x64
3000	1	Frequency	0x41

Tab. 105: Art. DP-34044-2 Store/Restore Parameters 1015 ... 3000

10.8.3 Art. DP-34044-3 Store/Restore Parameters 1015 ... 3000

DP-34044-3

Store/Restore Parameters

Index	Sub-Index	Name	Default Value
1015	0	Inhibit Time Emergency	0x00
1017	0	Producer Heartbeat Time	0x7D0
1400	5	Event Timer	0x00
1401	5	Event Timer	0x00
1402	5	Event Timer	0x00
1403	5	Event Timer	0x00
1404	5	Event Timer	0x00
1804	5	Event Timer	0x00
1805	5	Event Timer	0x00
1806	5	Event Timer	0x00
1807	5	Event Timer	0x00
1808	5	Event Timer	0x00
1809	5	Event Timer	0x00
180A	5	Event Timer	0x00
180B	6	Event Timer	0x00
2000	1	d1 - d8_Enable	0x00
	2	d9 - d16_Enable	0x00
	3	Output_Mode	0x01
	5	ID	0x00
2001	1	OUTMODE_1	0x11
	2	OUTMODE_2	0x11
	3	OUTMODE_3	0x11
	4	OUTMODE_4	0x11
	5	OUTMODE_5	0x11
	6	OUTMODE_6	0x11
	7	OUTMODE_7	0x11
	8	OUTMODE_8	0x11

➔ Continued on the next page

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Store/Restore Parameters

Index	Sub-Index	Name	Default Value
2002	1	Port1A_Kp	0x64
	2	Port1A_Ki	0x64
	3	Port1B_Kp	0x64
	4	Port1B_Ki	0x64
	5	Port2A_Kp	0x64
	6	Port2A_Ki	0x64
	7	Port2B_Kp	0x64
	8	Port2B_Ki	0x64
	9	Port3A_Kp	0x64
	10	Port3A_Ki	0x64
	11	Port3B_Kp	0x64
	12	Port3B_Ki	0x64
	13	Port4A_Kp	0x64
	14	Port4A_Ki	0x64
	15	Port4B_Kp	0x64
	16	Port4B_Ki	0x64
	17	Port5A_Kp	0x64
	18	Port5A_Ki	0x64
	19	Port5B_Kp	0x64
	20	Port5B_Ki	0x64
	21	Port6A_Kp	0x64
	22	Port6A_Ki	0x64
	23	Port6B_Kp	0x64
	24	Port6B_Ki	0x64
	25	Port7A_Kp	0x64
	26	Port7A_Ki	0x64
	27	Port7B_Kp	0x64
	28	Port7B_Ki	0x64
	29	Port8A_Kp	0x64
	30	Port8A_Ki	0x64
	31	Port8B_Kp	0x64
	32	Port8B_Ki	0x64
2004	1	Port_1A	0x64
	2	Port_3A	0x64
3000	1	Frequency	0x41

Tab. 106: Art. DP-34044-3 Store/Restore Parameters 1015 ... 3000

10.8.4 Art. DP-34044-5 Store/Restore Parameters 1015 ... 2004

DP-34044-5 Store/Restore Parameters

Index	Sub-Index	Name	Default Value
1015	0	Inhibit Time Emergency	0
1017	0	Producer Heartbeat Time	0x7D0
1400	5	Event Timer	0
1800	5	Event Timer	0x00
1801	5	Event Timer	0x00
1804	5	Event Timer	0x00
1805	5	Event Timer	0x00
1806	5	Event Timer	0x00
1807	5	Event Timer	0x00
1808	5	Event Timer	0x00
1809	5	Event Timer	0x00
2000	1	d1 - d8_Enable	0
	2	d9 - d16_Enable	0
	3	ID	0
2004	1	Limit Port_1A	0x64
	2	Limit Port_3A	0x64

Tab. 107: Art. DP-34044-5 Store/Restore Parameters 1015 ... 2004

10.9 CAN BUS Message (Diagnostics)

10.9.1 Art. DP-34044-1, -2, -3, -5 Emergency Message

Emergency Message Format

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Emergency Code		Error Register	Manufacturer Specific Error Field				

Tab. 108: Art. DP-34044-1, -2, -3, -5 Emergency Message Format

Emergency Message

Emergency Code	Description	Manufacturer Specific Error Code				
		Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
0x0000	Error reset or no error	0	0	0	0	0
0x0106	Duplicate Node ID	No-deID				
0x1000	Generic error	1	0	0	0	0
0x2310	Overload - Current at outputs too high	Port	Port	0	0	0
0x3110	Input voltage too high	Voltage		0	0	0
0x3120	Input voltage too low	Voltage		0	0	0
0x3210	Internal voltage too high	0	0	0	0	0
0x4200	Module temperature in Fahrenheit	Temperature		0	0	0
0x6000	CANopen device software error	Type	Location	0	0	0

Tab. 109: Art. DP-34044-1, -2, -3, -5 Emergency Message

10.9.2 Art. DP-34044-1, -2, -3, -5 Response Message

Response Message

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5000	1	Status 1	2 bit	1	1,2	Factory **Default** Configuration
		Status 2			3,4	Configuration Saved (module is configured)
		Status 3			5,6	Alternate Configuration Received
		Status 4			7,8	Node Alive
	2	Status 5		2	1,2	Node Fault Present
		Status 6			3,4	Fault Count not Zero
		Status 7			5,6	Not used, will see (11b)
		Status 8			7,8	
	3	Fault Code	Byte	3		Active fault code
	4	User ID		4		The User ID of the module configured in Index 2000

Tab. 110: Art. DP-34044-1, -2, -3, -5 Response Message Index 5000

Link to: 8.13 Operation with user program and diagnostics

10.9.3 Art. DP-34044-1 Status Message F1 5001

DP-34044-1
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	1	Config Pair1	2 bit	1	1,2	Baud rate configuration jumper is applied
		Config Pair 2			3,4	Node ID 1's configuration jumper is applied
		Config Pair 3			5,6	Node ID 2's configuration jumper is applied
		Config Pair 4			7,8	Node ID 3's configuration jumper is applied
	2	Config Pair 5		2	1,2	Node ID 4's configuration jumper is applied
					3,4	Not used, will see (11b)
					5,6	
					7,8	
	3	Output 1A status		3	1,2	Status of Output 1A, (00 = off), (01 = on), (10 = fault)
		Output 1B Status			3,4	Status of Output 1B, (00 = off), (01 = on), (10 = fault)
		Output 2A status			5,6	Status of Output 2A, (00 = off), (01 = on), (10 = fault)
		Output 2B Status			7,8	Status of Output 2B, (00 = off), (01 = on), (10 = fault)
	4	Output 3A status		4	1,2	Status of Output 3A, (00 = off), (01 = on), (10 = fault)
		Output 3B Status			3,4	Status of Output 3B, (00 = off), (01 = on), (10 = fault)
		Output 4A status			5,6	Status of Output 4A, (00 = off), (01 = on), (10 = fault)
		Output 4B Status			7,8	Status of Output 4B, (00 = off), (01 = on), (10 = fault)

➔ Continued on the next page

DP-34044-1
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	5	Input Power Port 5	2 bit	5	1,2	Status of output for Input Power on Port 5, (00 = off), (01 = on), (10 = fault)
					3,4	Not used, will see (11b)
		Input Power Port 6			5,6	Status of output for Input Power on Port 6, (00 = off), (01 = on), (10 = fault)
					7,8	Not used, will see (11b)
	6	Input Power Port 7		6	1,2	Status of output for Input Power on Port 7, (00 = off), (01 = on), (10 = fault)
					3,4	Not used, will see (11b)
		Input Power Port 8			5,6	Status of output for Input Power on Port 8, (00 = off), (01 = on), (10 = fault)
					7,8	Not used, will see (11b)
	7	Power Bus P1		7	1,2	Status of Power Bus P1 (00 = off), (01 = on), (10 = fault)
		Power Bus P2			3,4	Status of Power Bus P2 (00 = off), (01 = on), (10 = fault)
		Power Bus P3			5,6	Not used, will see (11b)
		Power Bus P4			7,8	
	8	Save Config Counter	Byte	8		Count of how many times the configuration has been saved to the module

Tab. 111: Art. DP-34044-1 Status Message F1 5001

10.9.4 Art. DP-34044-2 Status Message F1 5001

DP-34044-2
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	1	Config Pair1	2 bit	1	1,2	Baud rate configuration jumper is applied
		Config Pair 2			3,4	Node ID 1's configuration jumper is applied
		Config Pair 3			5,6	Node ID 2's configuration jumper is applied
		Config Pair 4			7,8	Node ID 3's configuration jumper is applied
	2	Config Pair 5		2	1,2	Node ID 4's configuration jumper is applied
					3,4	Not used, will see (11b)
					5,6	
					7,8	
	3	Input Power Port 1		3	1,2	Status of Output for Input Power on Port 1, (00 = off), (01 = on), (10 = fault)
					3,4	Not used, will see (11b)
		Input Power Port 2			5,6	Status of Output for Input Power on Port 2, (00 = off), (01 = on), (10 = fault)
					7,8	Not used, will see (11b)
	4	Input Power Port 3		4	1,2	Status of Output for Input Power on Port 3, (00 = off), (01 = on), (10 = fault)
					3,4	Not used, will see (11b)
		Input Power Port 4			5,6	Status of Output for Input Power on Port 4, (00 = off), (01 = on), (10 = fault)
					7,8	Not used, will see (11b)

➔ Continued on the next page

DP-34044-2
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	5	Input Power Port 5	2 bit	5	1,2	Status of Output for Input Power on Port 5, (00 = off), (01 = on), (10 = fault)
					3,4	Not used, will see (11b)
		Input Power Port 6			5,6	Status of Output for Input Power on Port 6, (00 = off), (01 = on), (10 = fault)
					7,8	Not used, will see (11b)
	6	Input Power Port 7		6	1,2	Status of Output for Input Power on Port 7, (00 = off), (01 = on), (10 = fault)
					3,4	Not used, will see (11b)
		Input Power Port 8			5,6	Status of Output for Input Power on Port 8, (00 = off), (01 = on), (10 = fault)
					7,8	Not used, will see (11b)
	7	Power Bus P1		7	1,2	Not used, will see (11b)
		Power Bus P2			3,4	
		Power Bus P3			5,6	
		Power Bus P4			7,8	
	8	Save Config Counter	Byte	8		Count of how many times the configuration has been saved to the module

Tab. 112: Art. DP-34044-2 Status Message F1 5001

10.9.5 Art. DP-34044-3 Status Message F1 5001

DP-34044-3
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	1	Config Pair1	2 bit	1	1,2	Baud rate configuration jumper is applied
		Config Pair 2			3,4	Node ID 1's configuration jumper is applied
		Config Pair 3			5,6	Node ID 2's configuration jumper is applied
		Config Pair 4			7,8	Node ID 3's configuration jumper is applied
	2	Config Pair 5		2	1,2	Node ID 4's configuration jumper is applied
					3,4	Not used, will see (11b)
					5,6	
					7,8	
	3	Output 1A status		3	1,2	Status of Output 1A, (00 = off), (01 = on), (10 = fault)
		Output 1B Status			3,4	Status of Output 1B, (00 = off), (01 = on), (10 = fault)
		Output 2A status			5,6	Status of Output 2A, (00 = off), (01 = on), (10 = fault)
		Output 2B Status			7,8	Status of Output 2B, (00 = off), (01 = on), (10 = fault)
	4	Output 3A status		4	1,2	Status of Output 3A, (00 = off), (01 = on), (10 = fault)
		Output 3B Status			3,4	Status of Output 3B, (00 = off), (01 = on), (10 = fault)
		Output 4A status			5,6	Status of Output 4A, (00 = off), (01 = on), (10 = fault)
		Output 4B Status			7,8	Status of Output 4B, (00 = off), (01 = on), (10 = fault)

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DP-34044-3
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	5	Output 5A status	2 bit	5	1,2	Status of Output 5A, (00 = off), (01 = on), (10 = fault)
		Output 5B Status			3,4	Status of Output 5B, (00 = off), (01 = on), (10 = fault)
		Output 6A status			5,6	Status of Output 6A, (00 = off), (01 = on), (10 = fault)
		Output 6B Status			7,8	Status of Output 6B, (00 = off), (01 = on), (10 = fault)
	6	Output 7A Status		6	1,2	Status of Output 7A, (00 = off), (01 = on), (10 = fault)
		Output 7B Status			3,4	Status of Output 7B, (00 = off), (01 = on), (10 = fault)
		Output 8A status			5,6	Status of Output 8A, (00 = off), (01 = on), (10 = fault)
		Output 8B Status			7,8	Status of Output 8B, (00 = off), (01 = on), (10 = fault)
	7	Power Bus P1		7	1,2	Status of Power Bus P1 (00 = off), (01 = on), (10 = fault)
		Power Bus P2			3,4	Status of Power Bus P2 (00 = off), (01 = on), (10 = fault)
		Power Bus P3			5,6	Status of Power Bus P3 (00 = off), (01 = on), (10 = fault)
		Power Bus P4			7,8	Status of Power Bus P4 (00 = off), (01 = on), (10 = fault)
	8	Save Config Counter	Byte	8		Count of how many times the configuration has been saved to the module

Tab. 113: Art. DP-34044-3 Status message F1 5001

10.9.6 Art. DP-34044-5 Status Message F1 5001

DP-34044-5
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	1	Config Pair1	2 bit	1	1,2	Baud rate configuration jumper is applied
		Config Pair 2			3,4	Node ID 1's configuration jumper is applied
		Config Pair 3			5,6	Node ID 2's configuration jumper is applied
		Config Pair 4			7,8	Node ID 3's configuration jumper is applied
	2	Config Pair 5		2	1,2	Node ID 4's configuration jumper is applied
					3,4	Not used, will see (11b)
					5,6	
					7,8	
	3	Output 1A status		3	1,2	Status of Output 1A, (00 = off), (01 = on), (10 = fault)
		Output 1B Status			3,4	Status of Output 1B, (00 = off), (01 = on), (10 = fault)
		Output 2A status			5,6	Status of Output 2A, (00 = off), (01 = on), (10 = fault)
		Output 2B Status			7,8	Status of Output 2B, (00 = off), (01 = on), (10 = fault)
	4	Output 3A status		4	1,2	Status of Output 3A, (00 = off), (01 = on), (10 = fault)
		Output 3B Status			3,4	Status of Output 3B, (00 = off), (01 = on), (10 = fault)
		Output 4A status			5,6	Status of Output 4A, (00 = off), (01 = on), (10 = fault)
		Output 4B Status			7,8	Status of Output 4B, (00 = off), (01 = on), (10 = fault)

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DP-34044-5
Status Message F1

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5001	5	Output 5A status	2 bit	5	1,2	Status of Output 5A, (00 = off), (01 = on), (10 = fault)
		Output 5B Status			3,4	Status of Output 5B, (00 = off), (01 = on), (10 = fault)
		Output 6A status			5,6	Status of Output 6A, (00 = off), (01 = on), (10 = fault)
		Output 6B Status			7,8	Status of Output 6B, (00 = off), (01 = on), (10 = fault)
	6	Output 7A Status		6	1,2	Status of Output 7A, (00 = off), (01 = on), (10 = fault)
		Output 7B Status			3,4	Status of Output 7B, (00 = off), (01 = on), (10 = fault)
		Output 8A status			5,6	Status of Output 8A, (00 = off), (01 = on), (10 = fault)
		Output 8B Status			7,8	Status of Output 8B, (00 = off), (01 = on), (10 = fault)
	7	Power Bus P1		7	1,2	Status of Power Bus P1 (00 = off), (01 = on), (10 = fault)
		Power Bus P2			3,4	Not used, will see (11b)
		Power Bus P3			5,6	
		Power Bus P4			7,8	
	8	Save Config Counter	Byte	8		Count of how many times the configuration has been saved to the module

Tab. 114: Art. DP-34044-5 Status Message F1 5001

10.9.7 Art. DP-34044-1, -2, -3, -5 Status Message F2 5002

Status Message F2

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5002	1	VBAT	10 bit	1	All	Battery Voltage
				2	1,2	
	2	TEMP	12 bit	3	All	Module Temperature
				4	1,2 ,3,4	
	3	CNFG1	Word	5		Hardware Configuration
				6		
	4	CNFG2		7		PCB Assembly Revision
				8		
	5	CNFG3		9		Additional Configuration
				10		

Tab. 115: Art. DP-34044-1, -2, -3, -5 Status Message F2 5002

Link to: 8.13 Operation with user programand diagnostics

10.9.8 Art. DP-34044-1 Status Message AMP Data 5003

DP-34044-1

Status Message AMP Data

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5003	1	OUT 1A AMP FEEDBACK	Word	1		Current reading on Output 1A, 0-4,000 = 0-4000 mA
				2		
	2	OUT 1B AMP FEEDBACK		3		Current reading on Output 1B, 0-4,000 = 0-4000 mA
				4		
	3	OUT 2A AMP FEEDBACK		5		Current reading on Output 2A, 0-4,000 = 0-4000 mA
				6		
	4	OUT 2B AMP FEEDBACK		7		Current reading on Output 2B, 0-4,000 = 0-4000 mA
				8		
	5	OUT 3AAMP FEEDBACK		9		Current reading on Output 3A, 0-4,000 = 0-4000 mA
				10		
	6	OUT 3B AMP FEEDBACK		11		Current reading on Output 3B, 0-4,000 = 0-4000 mA
				12		
	7	OUT 4AAMP FEEDBACK		13		Current reading on Output 4A, 0-4,000 = 0-4000 mA
				14		
	8	OUT 4B AMP FEEDBACK		15		Current reading on Output 4B, 0-4,000 = 0-4000 mA
				16		

Tab. 116: Art. DP-34044-1 Status Message AMP Data 5003

10.9.9 Art. DP-34044-3 Status Message AMP Data 5003

DP-34044-3

Status Message AMP Data

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5003	1	OUT 1A AMP FEEDBACK	Word	1		Current reading on Output 1A, 0-4,000 = 0-4000 mA
				2		
	2	OUT 1B AMP FEEDBACK		3		Current reading on Output 1B, 0-4,000 = 0-4000 mA
				4		
	3	OUT 2A AMP FEEDBACK		5		Current reading on Output 2A, 0-4,000 = 0-4000 mA
				6		

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DP-34044-3

Status Message AMP Data

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5003	4	OUT 2B AMP FEEDBACK	Word	7		Current reading on Output 2B, 0-4,000 = 0-4000 mA
				8		
	5	OUT 3AAMP FEEDBACK		9		Current reading on Output 3A, 0-4,000 = 0-4000 mA
				10		
	6	OUT 3B AMP FEEDBACK		11		Current reading on Output 3B, 0-4,000 = 0-4000 mA
				12		
	7	OUT 4AAMP FEEDBACK		13		Current reading on Output 4A, 0-4,000 = 0-4000 mA
				14		
	8	OUT 4B AMP FEEDBACK		15		Current reading on Output 4B, 0-4,000 = 0-4000 mA
				16		
	9	OUT 5A AMP FEEDBACK		17		Current reading on Output 5A, 0-4,000 = 0-4000 mA
				18		
	10	OUT 5B AMP FEEDBACK		19		Current reading on Output 5B, 0-4,000 = 0-4000 mA
				20		
	11	OUT 6A AMP FEEDBACK		21		Current reading on Output 6A, 0-4,000 = 0-4000 mA
				22		
	12	OUT 6B AMP FEEDBACK		23		Current reading on Output 6B, 0-4,000 = 0-4000 mA
				24		
	13	OUT 7AAMP FEEDBACK		25		Current reading on Output 7A, 0-4,000 = 0-4000 mA
				26		
	14	OUT 7B AMP FEEDBACK		27		Current reading on Output 7B, 0-4,000 = 0-4000 mA
				28		
	15	OUT 8AAMP FEEDBACK		29		Current reading on Output 8A, 0-4,000 = 0-4000 mA
				30		
	16	OUT 8B AMP FEEDBACK		31		Current reading on Output 8B, 0-4,000 = 0-4000 mA
				32		

Tab. 117: Art. DP-34044-3 Status Message AMP Data 5003

10.9.10 Art. DP-34044-5 Status Message AMP Data 5003

DP-34044-5

Status Message AMP Data

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5003	1	Port_1A	Byte	1		Current reading on Port 1A, 0-100=0-10A, data range 0 - 220 bits (22.0 Amp)
		Port_1B		2		Current reading on Port 1B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
	2	Port_2A		3		Current reading on Port 2A, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
		Port_2B		4		Current reading on Port 2B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
	3	Port_3A		5		Current reading on Port 3A, 0-100=0-10A, data range 0 - 220 bits (22.0 Amp)
		Port_3B		6		Current reading on Port 3B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
	4	Port_4A		7		Current reading on Port 4A, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
		Port_4B		8		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).

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DP-34044-5

Status Message AMP Data

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5003	5	Port_1A	Byte	9		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
		Port_1B		10		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
	6	Port_2A		11		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
		Port_2B		12		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
	7	Port_3A		13		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
		Port_3B		14		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
	8	Port_4A		15		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).
		Port_4B		16		Current reading on Port 4B, 0-40=0-4A, data range 0 - 220 bits (22.0 Amp).

Tab. 118: Art. DP-34044-5 Status Message AMP Data 5003

Link to: 8.13 Operation with user programand diagnostics

10.9.11 Art. DP-34044-1, -2, -3, -5 Fault Message 5004

Fault Message

Index	Sub-Index	Name	Data Type	Byte	Bits	Description
5004	1	Counter_F1	Byte	1		Fault Counter F1
	2	Counter_F2		2		Fault Counter F2
	3	Counter_F3		3		Fault Counter F3
	4	Counter_F4		4		Fault Counter F4
	5	Counter_F5		5		Fault Counter F5
	6	Counter_F6		6		Fault Counter F6
	7	Counter_F7		7		Fault Counter F7
	8	Counter_F8		8		Fault Counter F8

Tab. 119: Art. DP-34044-1, -2, -3, -5 Fault Message 5004

Link to: 8.13 Operationwith user program and diagnostics

10.10 CAN BUS Communication Segment

10.10.1 Art. DP-34044-1 Communication Segment 1000 ... 1602

DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1000	Device Type		UNSIGNED32		RO	0x000F0191
1001	Error Register		UNSIGNED8		RO	0x00
1003	Pre-Defined Error Field	0	UNSIGNED32	Number of Errors	RW	0x00000000
		1	UNSIGNED32	Standard Error Field	RO	0x00000000
		2	UNSIGNED32	Standard Error Field_2	RO	0x00000000
		3	UNSIGNED32	Standard Error Field_3	RO	0x00000000
		4	UNSIGNED32	Standard Error Field_4	RO	0x00000000
		5	UNSIGNED32	Standard Error Field_5	RO	0x00000000
1008	Manufacturer Device Name		VISIBLE_STRING		CONST	34044_1_200
1009	Manufacturer Hardware Version		VISIBLE_STRING		CONST	34044_201
100A	Manufacturer Software Version		VISIBLE_STRING		CONST	01.0E
1010	Store Parameter Field	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Save all parameters	RW	0x00000000
		2	UNSIGNED32	Save Communication Parameters	RW	0x00000000
		3	UNSIGNED32	Save Application Parameters	RW	0x00000000

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1011	Restore Default Parameters	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Restore all default parameters	RW	0x00000000
		2	UNSIGNED32	Restore communication default parameters	RW	0x00000000
		3	UNSIGNED32	Restore Application Default Parameters	RW	0x00000000
1014	COB ID EMCY		UNSIGNED32		RO	0x00000080
1015	Inhibit Time Emergency		UNSIGNED16		RW	0x0000
1017	Producer Heartbeat Time		UNSIGNED16		RW	0x07D0
1018	Identity Object	0	IDENTITY	Number of entries	RO	0x04
		1	UNSIGNED32	Vendor ID	RO	0x000004FB
		2	UNSIGNED32	Product Code	RO	0x340441
		3	UNSIGNED32	Revision number	RO	0x0001000E
		4	UNSIGNED32	Serial number	RO	0x0
1200	Server SDO Parameter 1	0	SDO_PARAMETER	Highest sub-index supported	RO	0x02
		1	UNSIGNED32	COB-ID Client -> Server	RO	0x600+NodeID
		2	UNSIGNED32	COB-ID Server -> Client	RO	0x580+NodeID

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1400	Receive PDO Communication Parameter 1	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x200+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1401	Receive PDO Communication Parameter 2	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x300+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1402	Receive PDO Communication Parameter 3	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x400+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1600	Receive PDO Mapping Parameter 1	0	PDO_MAPPING	Number of mapped objects	CONST	0x03
		1	UNSIGNED32	Mapping Entry 1	CONST	0x62000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x62000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x62000308
1601	Receive PDO Mapping Parameter 2	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64110110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64110210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64110310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64110410
1602	Receive PDO Mapping Parameter 3	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64110510
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64110610
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64110710
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64110810

Tab. 120: Art. DP-34044-1 Communication Segment 1000 ... 1602

10.10.2 Art. DP-34044-2 Communication Segment 1000 ... 1600

DP-34044-2

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1000	Device Type		UNSIGNED32		RO	0x00070191
1001	Error Register		UNSIGNED8		RO	0x00
1003	Pre-Defined Error Field	0	UNSIGNED32	Number of Errors	RW	0x00000000
		1	UNSIGNED32	Standard Error Field	RO	0x00000000
		2	UNSIGNED32	Standard Error Field_2	RO	0x00000000
		3	UNSIGNED32	Standard Error Field_3	RO	0x00000000
		4	UNSIGNED32	Standard Error Field_4	RO	0x00000000
		5	UNSIGNED32	Standard Error Field_5	RO	0x00000000
1008	Manufacturer Device Name		VISIBLE_STRING		CONST	34044_2_200
1009	Manufacturer Hardware Version		VISIBLE_STRING		CONST	34044_202
100A	Manufacturer Software Version		VISIBLE_STRING		CONST	01.0A
1010	Store Parameter Field	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Save all parameters	RW	0x00000000
		2	UNSIGNED32	Save Communication Parameters	RW	0x00000000
		3	UNSIGNED32	Save Application Parameters	RW	0x00000000

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DP-34044-2

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1011	Restore Default Parameters	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Restore all default parameters	RW	0x00000000
		2	UNSIGNED32	Restore communication default parameters	RW	0x00000000
		3	UNSIGNED32	Restore Application Default Parameters	RW	0x00000000
1014	COB ID EMCY		UNSIGNED32		RO	0x00000080
1015	Inhibit Time Emergency		UNSIGNED16		RW	0x0000
1017	Producer Heartbeat Time		UNSIGNED16		RW	0x07D0
1018	Identity Object	0	IDENTITY	Number of entries	RO	0x04
		1	UNSIGNED32	Vendor ID	RO	0x000004FB
		2	UNSIGNED32	Product Code	RO	0x340442
		3	UNSIGNED32	Revision number	RO	0x0001000A
		4	UNSIGNED32	Serial number	RO	0x0
1200	Server SDO Parameter 1	0	SDO_PARAMETER	Highest sub-index supported	RO	0x02
		1	UNSIGNED32	COB-ID Client -> Server	RO	0x600+NodeID
		2	UNSIGNED32	COB-ID Server -> Client	RO	0x580+NodeID

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DP-34044-2

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1400	Receive PDO Communication Parameter 1	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x200+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1600	Receive PDO Mapping Para-meter 1	0	PDO_MAPPING	Number of mapped objects	CONST	0x03
		1	UNSIGNED32	Mapping Entry 1	CONST	0x62000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x62000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x62000308

Tab. 121: Art. DP-34044-2 Communication Segment 1000 ... 1600

10.10.3 Art. DP-34044-3 Communication Segment 1000 ... 1604

DP-34044-3

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1000	Device Type		UNSIGNED32		RO	0x000E0191
1001	Error Register		UNSIGNED8		RO	0x00
1003	Pre-Defined Error Field	0	UNSIGNED32	Number of Errors	RW	0x00000000
		1	UNSIGNED32	Standard Error Field	RO	0x00000000
		2	UNSIGNED32	Standard Error Field_2	RO	0x00000000
		3	UNSIGNED32	Standard Error Field_3	RO	0x00000000
		4	UNSIGNED32	Standard Error Field_4	RO	0x00000000
		5	UNSIGNED32	Standard Error Field_5	RO	0x00000000
1008	Manufacturer Device Name		VISIBLE_STRING		CONST	34044_3_200
1009	Manufacturer Hardware Version		VISIBLE_STRING		CONST	34044_204
100A	Manufacturer Software Version		VISIBLE_STRING		CONST	0x02
1010	Store Parameter Field	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Save all parameters	RW	0x00000000
		2	UNSIGNED32	Save Communication Parameters	RW	0x00000000
		3	UNSIGNED32	Save Application Parameters	RW	0x00000000

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DP-34044-3

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1011	Restore Default Parameters	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Restore all default parameters	RW	0x00000000
		2	UNSIGNED32	Restore communication default parameters	RW	0x00000000
		3	UNSIGNED32	Restore Application Default Parameters	RW	0x00000000
1014	COB ID EMCY		UNSIGNED32		RO	0x00000080
1015	Inhibit Time Emergency		UNSIGNED16		RW	0x0000
1017	Producer Heartbeat Time		UNSIGNED16		RW	0x000007D0
1018	Identity Object	0	IDENTITY	Number of entries	RO	0x04
		1	UNSIGNED32	Vendor ID	RO	0x000004FB
		2	UNSIGNED32	Product Code	RO	0x340443
		3	UNSIGNED32	Revision number	RO	0x00020000
		4	UNSIGNED32	Serial number	RO	0x00
1200	Server SDO parameter 1	0	SDO_PARAMETER	Highest sub-index supported	RO	0x02
		1	UNSIGNED32	COB-ID Client -> Server	RO	0x600+NodeID
		2	UNSIGNED32	COB-ID Server -> Client	RO	0x580+NodeID

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DP-34044-3

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1400	ReceivePDO Communication Parameter 1	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x200+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1401	Receive PDO Communication Parameter 2	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x300+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1402	Receive PDO Communication Parameter 3	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x400+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1403	Receive PDO Communication Parameter 4	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x500 +NodeID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1404	Receive PDO Communication Parameter 5	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x220 +NodeID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1600	Receive PDO Mapping Para-meter 1	0	PDO_MAPPING	Number of mapped objects	CONST	0x02
		1	UNSIGNED32	Mapping Entry 1	CONST	0x62000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x62000208

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1601	Receive PDO Mapping Parameter 2	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64110110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64110210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64110310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64110410
1602	Receive PDO Mapping Parameter 3	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64110510
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64110610
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64110710
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64110810
1603	Receive PDO Mapping Parameter 4	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64110910
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64110A10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64110B10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64110C10
1604	Receive PDO Mapping Parameter 5	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64110D10
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64110E10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64110F10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64111010

Tab. 122: Art. DP-34044-3 Communication Segment 1000 ... 1604

10.10.4 Art. DP-34044-5 Communication Segment 1000 ... 1600

DP-34044-5

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1000	Device Type		UNSIGNED32		RO	0x00020191
1001	Error Register		UNSIGNED8		RO	0x00
1003	Pre-Defined Error Field	0	UNSIGNED32	Number of Errors	RW	0x00
		1	UNSIGNED32	Standard Error Field	RO	0x00000000
		2	UNSIGNED32	Standard Error Field_2	RO	0x00000000
		3	UNSIGNED32	Standard Error Field_3	RO	0x00000000
		4	UNSIGNED32	Standard Error Field_4	RO	0x00000000
		5	UNSIGNED32	Standard Error Field_5	RO	0x00000000
1008	Manufacturer Device Name		VISIBLE_STRING		CONST	34044_5_200
1009	Manufacturer Hardware Version		VISIBLE_STRING		CONST	34044_205
100A	Manufacturer Software Version		VISIBLE_STRING		CONST	1.07
1010	Store Parameter Field	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Save all parameters	RW	0x00000000
		2	UNSIGNED32	Save Communication Parameters	RW	0x00000000
		3	UNSIGNED32	Save Application Parameters	RW	0x00000000

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1011	Restore Default Parameters	0	UNSIGNED32	Highest sub-index supported	RO	0x03
		1	UNSIGNED32	Restore all default parameters	RW	0x00000000
		2	UNSIGNED32	Restore communication default parameters	RW	0x00000000
		3	UNSIGNED32	Restore Application Default Parameters	RW	0x00000000
1014	COB ID EMCY		UNSIGNED32		RO	0x00000080
1015	Inhibit Time Emergency		UNSIGNED16		RW	0x0000
1017	Producer Heartbeat Time		UNSIGNED16		RW	0x07D0
1018	Identity Object	0	IDENTITY	Number of entries	RO	0x04
		1	UNSIGNED32	Vendor ID	RO	0x000004FB
		2	UNSIGNED32	Product Code	RO	0x340445
		3	UNSIGNED32	Revision number	RO	0x00010007
		4	UNSIGNED32	Serial number	RO	0x0
1200	Server SDO Parameter 1	0	SDO_PARAMETER	Highest sub-index supported	RO	0x02
		1	UNSIGNED32	COB-ID Client -> Server	RO	0x600+NodeID
		2	UNSIGNED32	COB-ID Server -> Client	RO	0x580+NodeID

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DP-34044-5

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1400	Receive PDO Communication Parameter 1	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x200+No-deID
		2	UNSIGNED8	Transmis-sion Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibi-lity Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1600	Receive PDO Mapping Para-meter 1	0	PDO_MAPPING	Number of mapped objects	CONST	0x02
		1	UNSIGNED32	Mapping Entry 1	CONST	0x62000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x62000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x62000308

Tab. 123: Art. DP-34044-3 Communication Segment 1000 ... 1600

10.10.5 Art. DP-34044-1, -2, -3, -5 Communication Segment 1800 ... 1805

DP-34044-1, DP-34044-2, DP-34044-3, DP-34044-5

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1800	Transmit PDO Communication Parameter 1	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x0180+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1801	Transmit PDO Communication Parameter 2	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x280+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1802	Transmit PDO Communication Parameter 3	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x380+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0

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DP-34044-1, DP-34044-2, DP-34044-3, DP-34044-5

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1803	Transmit PDO Communication Parameter 4	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x480+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFF
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1804	Transmit PDO Communication Parameter 5	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x1A0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1805	Transmit PDO Communication Parameter 6	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x1C0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0

Tab. 124: Art. DP-34044-1, -2, -3, -5 Communication Segment 1800 ... 1805

10.10.6 Art. DP-34044-1 Communication Segment 1806 ... 1A09

DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1806	Transmit PDO Communication Parameter 7	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x1E0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1807	Transmit PDO Communication Parameter 8	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x2A0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1808	Transmit PDO Communication Parameter 9	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x2C0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1809	Transmit PDO Communication Parameter 10	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x2E0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1A00	Transmit PDO Mapping Parameter 1	0	PDO_MAPPING	Number of mapped objects	CONST	0x01
		1	UNSIGNED32	Mapping Entry 1	CONST	0x60000108

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A01	Transmit PDO Mapping Parameter 2	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64010410
1A02	Transmit PDO Mapping Parameter 3	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010510
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010610
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010710
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64010810
1A03	Transmit PDO Mapping Parameter 4	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010910
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010A10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010B10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64010C10

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A04	Transmit PDO Mapping Parameter 5	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50000308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50000408
1A05	Transmit PDO Mapping Parameter 6	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50010108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50010208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50010308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50010408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50010508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50010608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50010708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50010808
1A06	Transmit PDO Mapping Parameter 7	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50020110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50020210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50020310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50020410

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DP-34044-1

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A07	Transmit PDO Mapping Parameter 8	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030410
1A08	Transmit PDO Mapping Parameter 9	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030510
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030610
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030710
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030810
1A09	Transmit PDO Mapping Parameter 10	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50040108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50040208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50040308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50040408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50040508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50040608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50040708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50040808

Tab. 125: Art. DP-34044-1 Communication Segment 1806 ... 1A09

10.10.7 Art. DP-34044-2 Communication Segment 1806 ... 1A09

DP-34044-2

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1806	Transmit PDO Communication Parameter 7	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x1E0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1807	Transmit PDO Communication Parameter 8	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x2A0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1808	Transmit PDO Communication Parameter 9	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x2C0+NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0

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DP-34044-2

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1809	Transmit PDO Communication Parameter 10	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x2E0 +NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1A00	Transmit PDO Mapping Parameter 1	0	PDO_MAPPING	Number of mapped objects	CONST	0x02
		1	UNSIGNED32	Mapping Entry 1	CONST	0x60000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x60000208
1A01	Transmit PDO Mapping Parameter 2	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64010410
1A02	Transmit PDO Mapping Parameter 3	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010510
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010610
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010710
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64010810

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A03	Transmit PDO Mapping Parameter 4	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010910
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010A10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010B10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64010C10
1A04	Transmit PDO Mapping Parameter 5	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64010D10
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64010E10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64010F10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64011010
1A05	Transmit PDO Mapping Parameter 6	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x64011110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x64011210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x64011310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x64011410
1A06	Transmit PDO Mapping Parameter 7	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50000308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50000408

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A07	Transmit PDO Mapping Parameter 8	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50010108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50010208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50010308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50010408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50010508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50010608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50010708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50010808
1A08	Transmit PDO Mapping Parameter 9	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50020110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50020210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50020310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50020410

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A09	Transmit PDO Mapping Parameter 10	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50040108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50040208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50040308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50040408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50040508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50040608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50040708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50040808

Tab. 126: Art. DP-34044-2 Communication Segment 1806 ... 1A09

10.10.8 Art. DP-34044-3 Communication Segment 180A ... 1A0B

DP-34044-3

Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
180A	Transmit PDO Communication Parameter 11	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x3A0+ NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
180B	Transmit PDO Communication Parameter 12	0	PDO_COMM_PAR	Highest sub-index supported	RO	0x05
		1	UNSIGNED32	COB ID	RW	0x3C0+ NodeID
		2	UNSIGNED8	Transmission Type	RW	0xFE
		3	UNSIGNED16	Inhibit Time	RW	0x0
		4	UNSIGNED8	Compatibility Entry	RW	0x00
		5	UNSIGNED16	Event Timer	RW	0x0
1A04	Transmit PDO Mapping Parameter 5	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50000308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50000408

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A05	Transmit PDO Mapping Parameter 6	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50010108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50010208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50010308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50010408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50010508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50010608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50010708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50010808
1A06	Transmit PDO Mapping Parameter 7	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50020110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50020210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50020310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50020410
1A07	Transmit PDO Mapping Parameter 8	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030410

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A08	Transmit PDO Mapping Parameter 9	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030510
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030610
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030710
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030810
1A09	Transmit PDO Mapping Parameter 10	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030910
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030A10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030B10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030C10
1A0A	Transmit PDO Mapping Parameter 11	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030D10
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030E10
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030F10
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50031010

➔ Continued on the next page

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A0B	Transmit PDO Mapping Parameter 12	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50040108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50040208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50040308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50040408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50040508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50040608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50040708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50040808

Tab. 127: Art. DP-34044-3 Communication Segment 180A ... 1A0B

10.10.9 Art. DP-34044-5 Communication Segment 1A04 ... 1A09

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A04	Transmit PDO Mapping Parameter 5	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50000108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50000208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50000308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50000408
1A05	Transmit PDO Mapping Parameter 6	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50010108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50010208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50010308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50010408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50010508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50010608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50010708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50010808

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A06	Transmit PDO Mapping Parameter 7	0	PDO_MAPPING	Number of mapped objects	CONST	0x04
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50020110
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50020210
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50020310
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50020410
1A07	Transmit PDO Mapping Parameter 8	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50030508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50030608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50030708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50030808

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Communication Segment

Index	Name	Sub-Index	Data Type	Description	Access	Default Value
1A08	Transmit PDO Mapping Parameter 9	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50030908
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50030A08
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50030B08
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50030C08
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50030D08
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50030E08
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50030F08
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50031008
1A09	Transmit PDO Mapping Parameter 10	0	PDO_MAPPING	Number of mapped objects	CONST	0x08
		1	UNSIGNED32	Mapping Entry 1	CONST	0x50040108
		2	UNSIGNED32	Mapping Entry 2	CONST	0x50040208
		3	UNSIGNED32	Mapping Entry 3	CONST	0x50040308
		4	UNSIGNED32	Mapping Entry 4	CONST	0x50040408
		5	UNSIGNED32	Mapping Entry 5	CONST	0x50040508
		6	UNSIGNED32	Mapping Entry 6	CONST	0x50040608
		7	UNSIGNED32	Mapping Entry 7	CONST	0x50040708
		8	UNSIGNED32	Mapping Entry 8	CONST	0x50040808

Tab. 128: Art. DP-34044-5 Communication Segment 1A04 ... 1A09

Link to: 8 Initial Operation "How To Use“

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12. Appendix

12.1 Abbreviations and Description

Term	Meaning
AI	Analog Input
Application program	Software programmed into the machine by the manufacturer specifically for the application.
AO	Analog Output
Baud	Abbreviation: Bd = Unit of measurement for speed in data transmission.
BUS	Serial data transmission of several participants on the same line.
Byte	Term from IEC 61158, corresponds to 1 byte or 8 bits
CAL	CAN Application Layer: Application layer (ISO/OSI layer 7) specified by CiA
CAN	Controller Area Network
CANopen	CANopen is a standard of the CiA (CAN in Automation e. V.)
CiA	CAN in Automation e. V. Organization of CAN-BUS device manufacturers and users
CMS	CAN based Message Specification: A service element that provides the application layer for the manipulation of objects
COB	Communication Object: Messages are sent in COBs in the network and are considered as communication objects
COB ID	COB identifier: Each communication object is uniquely identified by the COB ID. The COB-ID identifies the priority of the communication object
CSMA/CA	Carrier Sense Multiple Access/Collision Avoidance
DBT	COB-ID Distributor: A service element of the application layer that handles the allocation of COB-IDs to the communication objects used by the CMS services.
DC	Direct Current
DI	Digital Input
DIN	German Institute for Standardization
DO	Digital Output
EDS	Electronic Data Sheets of CANopen devices
EMC	Electromagnetic Compatibility
EN	European standard

Term	Meaning
EU	European Union
IEC	International Electrotechnical Commission
ISO	International Standard Organization
LED	Light Emitting Diode
LMT	Layer Management: Allows setting layer-related parameters to a node
Master	Handles the complete organization on the BUS. The master decides about the temporal bus access and surveys the slaves cyclically
MNS	Module Network Status
NMT	Network Management: NMT provides services for initialization and monitoring of the nodes in a network
Node	Participant in the network
Node ID	Address of CANopen devices in the CAN network
OSI	Open Systems Interconnection
PDO	Process Data Object: Object for the exchange of process data between different devices
PELV	Protective Extra Low Voltage with safe disconnection
Process	Set of interrelated means and activities that transform inputs into outputs.
PWM	Pulse Width Modulation
Risk analysis	Systematically evaluate available information to identify hazards and assess RISKS
Risk assessment	Entirety of the process that includes RISK ANALYSIS and RISK ASSESSMENT
Risk assessment	Assessing, on the basis of a RISK ANALYSIS, whether an acceptable RISK has been achieved in a given context, based on the values recognized by the Company.
Risk Control	Process by which decisions are brought about and protective measures are implemented to reduce risks or keep them within specified limits.
Risk Management	Systematically apply management principles, PROCEDURES and practices to the analysis, evaluation and control of RISKS.
RO	Read Only or unidirectional data transmission
RTR	Remote Transmission Request: request for data (data request telegram) with the same identifier as used for data transmission
RW	Read/Write or bidirectional data transmission
SDO	Service Data Object: Objects for accessing and manipulating data in the object dictionary

Term	Meaning
Voltage Reset	Describes a restart that ensures a defined start of the bus system after the supply voltages have been applied, as soon as the supply voltages of the system have reached their nominal values
PLC	Programmable Logic Controller
SYNC	Synchronization object
Validation	Confirmation by providing objective evidence that the requirements for a specific intended use or application have been met
Procedure	Specified way to perform an activity
Verification	Confirmation based on an investigation and by providing a PROOF that specified requirements have been met

12.2 List of Tables

12.3 List of Figures

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