CANopen

PLC201

User's Manual - CANopen

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The information below describes the reviews made in this manual.

Version	Revision	Description
V1.03.XX	R00	First Edition.
V1.04.XX	R01	General review.
V1.05.XX	R02	General review.

CONTENTS

ABOUT THE MANUAL

This manual supplies the necessary information for the operation of the PLC201 Programmable Logic Controller using the protocol. This document must be used together with the PLC201 user's manual and programming manual.

ABBREVIATIONS AND DEFINITIONS

ASCII	American Standard Code for Information Interchange
CAN	Controller Area Network
CiA	CAN in Automation
CIP	Common Industrial Protocol
CRC	Cycling Redundancy Check
HMI	Human-Machine Interface
ODVA	Open DeviceNet Vendor Association
ISO	International Organization for Standardization
OSI	Open Systems Interconnection
PLC	Programmable Logic Controller
ro	read only (somente leitura)
rw	read/write (leitura e escrita)
RTR	Remote Transmission Request
Manager	In the network management context, a manager node is responsible for controlling the server nodes. Previously known as master node.
Server	In the context of network management, a server node receives and executes commands sent by the manager node. Previously known as slave node.

NUMERICAL REPRESENTATION

Decimal numbers are represented by means of digits without suffix. Hexadecimal numbers are represented with the letter 'h' after the number.

DOCUMENTS - CANOPEN

The CANopen protocol was developed based on the following specifications and documents:

Document	Version	Source
CAN Specification	2.0	CiA
CiA DS 301 CANopen Application Layer and Communication Profile	4.02	CiA
CiA DRP 303-1 Cabling and Connector Pin Assignment	1.1.1	CiA
CiA DSP 303-3 CANopen Indicator Specification	1.0	CiA
CiA DSP 306 Electronic Data Sheet Specification for CANopen	1.1	CiA
CiA DP 401 Device Profile Device Profile for Generic I/O Modules	2.1	CiA
CiA DSP 402 Device Profile Drives and Motion Control	2.0	CiA
Planning and Installation Manual - DeviceNet Cable System	PUB00027R1	ODVA

In order to obtain this documentation, consult CAN-CIA.ORG, which is nowadays the organization that keeps, publishes and updates the information related to the CANopen protocol.

IMPORTANT NOTICE ABOUT CYBERSECURITY AND COMMUNICATIONS

This product/equipment can connect and exchange information through networks and communication protocols. It has been designed and subjected to tests to ensure correct operation with other automation systems using the protocols mentioned in this manual. Therefore, it is essential that the customer understands the responsibilities in connection with information and cybersecurity when using this equipment.

Consequently, it is the exclusive obligation of the customer to adopt in-depth defense strategies and implement policies and measures to ensure the security of the system as a whole, including with regard to communications sent and received by the equipment. Among such measures, we can point out the installation of firewalls, antivirus and malware protection applications, data encryption, authentication control and physical user access.

WEG and its affiliates take no liability for damages or losses arising from cybersecurity breaches, including, but not limited to, unauthorized access, intrusion, information, or data leak and/or theft, denial-of-service attacks, or any other form of security breach. Using this product under conditions for which it was not specifically designed is not recommended and may result in damage to the product, the network, and the automation system. Thus, it is essential that the customer understand that the external intervention by third-party software applications, such as sniffers or applications with similar actions, has the potential to cause interruptions or restrictions in the functionality of the equipment.

TRADEMARKS

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1 MAIN CHARACTERISTICS

The characteristics for communication of the Programmable Logic Controller PLC201 with CANopen protocol vary according to the Network management task (NMT) mode configured:

1.1 NMT MANAGER (MASTER)

- 63 transmission PDOs.
- 63 reception PDOs.
- Heartbeat producer and/or consumer.
- Node Guarding.
- SDO Client.
- SYNC producer or consumer.
- Acyclic data available for parameterization.
- Follow producer.
- Support up to 63 server (slaves) in the same network.
- 512 bytes for Network output markers.
- 512 bytes for Network input markers.

1.2 NMT SERVER (SLAVE)

- 32 transmission PDOs.
- 32 reception PDOs.
- Heartbeat producer and/or consumer.
- Node Guarding.
- SDO server.
- SYNC producer or consumer.
- Acyclic data available for parameterization.
- It is supplied with an EDS file for the network manager configuration.

2 INTERFACE DESCRIPTION

2.1 CAN INTERFACE FEATURES

- Galvanically isolated interface with differential signal, providing greater robustness against electromagnetic interference.
- 24 V internal power supply.
- Allows the connection of up to 64 devices on the same segment. A greater number of devices can be connected using repeaters.
- Maximum bus length 1000 meters.

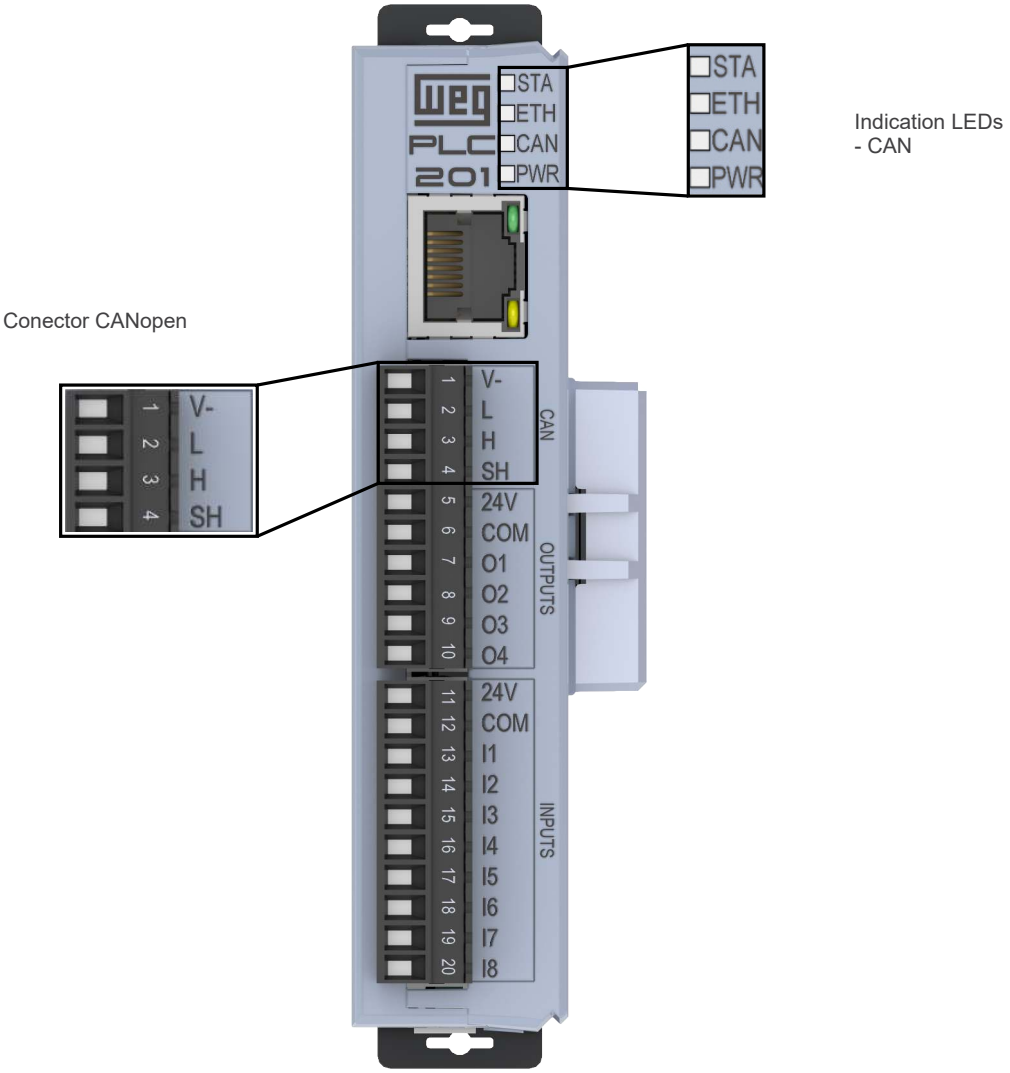


Figure 2.1: *CANopen - Connector and Indication LEDs.*

2.2 CONNECTOR

The CAN interface is available through a 4-way *plug-in* connector with the pinout shown in Figure 2.2 on page 2-2 and Table 2.1 on page 2-2:

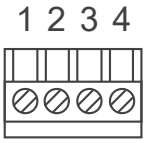


Figure 2.2: *Plug-in connector for CANopen*

Table 2.1: *Plug-in connector pinout for CANopen*

Pin	Name	Function
1	V-	0V from isolated circuit to CAN interface
2	CAN_L	CAN_L communication signal
3	CAN_H	CAN_H communication signal
4	Shield	Shielding cable

2.3 INDICATION LEDS

The Programmable Logic Controller PLC201 has a bicolor LED (green and red), shown in Figure 2.1 on page 2-1, which signals the communication status. The Table 2.2 on page 2-2 and Table 2.3 on page 2-2 show the behavior of this LED depending on the state the Programmable Logic Controller:

Table 2.2: *LED CAN - VERDE*

Indication	State	Description
Off	-	No power supply.
Green, blinks once	Stopped	Device is in stopped state. PDOs and SDOs are not available in this state.
Green, blinking every 200ms	Pre-operational	Device is in pre-operational state. PDOs are not available for communication.
Green, solid	Operational	Operational module.

Table 2.3: *LED CAN - VERMELHO*

Indication	State	Description
Off	No error	The device is in normal operating condition.
Red, flashes once	Warning	Indicates that the CAN interface is in a Warning or Error Passive state. This may occur, for example, if it is the only equipment connected to the CANopen network.
Red, blinks twice times	Node Guarding or Heartbeat Error	Communication error control CANopen detected a communication error using the guarding or heartbeat mechanism.
Red, solid	BUS OFF Error	Indicates that the CAN interface is in the BUS OFF state. Indicates a critical operating condition in the CANopen network, generally associated with installation problems or incorrect communication rate configuration. It is necessary to turn the equipment off and on again to restore communication.
Red, flickering every 50ms	CANopen uninitialized	Indicates that the CANopen Protocol has not been initialized. Check if the address is set to a valid value (01h – 7Fh).

3 CANOPEN NETWORK INSTALLATION

The CANopen network, such as several industrial communication networks, for being many times applied in aggressive environments with high exposure to electromagnetic interference, requires that certain precautions be taken in order to guarantee a low communication error rate during its operation. Recommendations to perform the connection of the product in this network are presented next.

NOTE!
Detailed recommendations on how to perform the installation are available at document ”Planning and Installation Manual” (DOCUMENTS - CANopen).

3.1 BAUD RATE

Equipments with CANopen interface generally allow the configuration of the desired baud rate, ranging from 20 Kbit/s to 1 Mbit/s. The baud rate that can be used by the equipment depends on the length of the cable used in the installation. The Table 3.1 on page 3-1 shows the baud rates and the maximum cable length that can be used in the installation, according to the protocol recommendation.

Table 3.1: *Supported baud rates and cable length*

Baud Rate	Cable length
20 Kbit/s	1000 m
50 Kbit/s	1000 m
100 Kbit/s	600 m
125 Kbit/s	500 m
250 Kbit/s	250 m
500 Kbit/s	100 m
800 Kbit/s	50 m
1 Mbit/s	25 m

All network equipment must be programmed to use the same communication baud rate.

3.2 ADDRESS IN THE CANOPEN NETWORK

Each CANopen network device must have an address or Node-ID, and may range from 1 to 127. This address must be unique for each equipment.

3.3 TERMINATION RESISTOR

The use of termination resistors at the ends of the bus is essential to avoid line reflection, which can impair the signal and cause communication errors. Termination resistors of 121 Ω | 0.25 W must be connected between the signals CAN_H and CAN_L at the ends of the main bus.

3.4 CABLE

The connection of CAN_L and CAN_H signals must be done with shielded twisted pair cable. The Table 3.2 on page 3-1 shows the recommended characteristics for the cable.

Table 3.2: *CANopen cable characteristics*

Cable Length (m)	Resistence per Meter (mΩ/m)	Conductor Cross Section (mm^2)
0 ... 40	70	0.25 ... 0.34
40 ... 300	<60	0.34 ... 0.60
300 ... 600	<40	0.50 ... 0.60
600 ... 1000	<26	0.75 ... 0.80

It is necessary to use a twisted pair cable to provide additional 24Vdc power supply to equipments that need this signal (not the case with the PLC201). It is recommended to use a certified DeviceNet cable.

3.5 CONNECTION TO THE NETWORK

In order to interconnect the several network nodes, it is recommended to connect the equipment directly to the main line without using derivations. During the cable installation the passage near to power cables must be avoided, because, due to electromagnetic interference, this makes the occurrence of transmission errors possible.

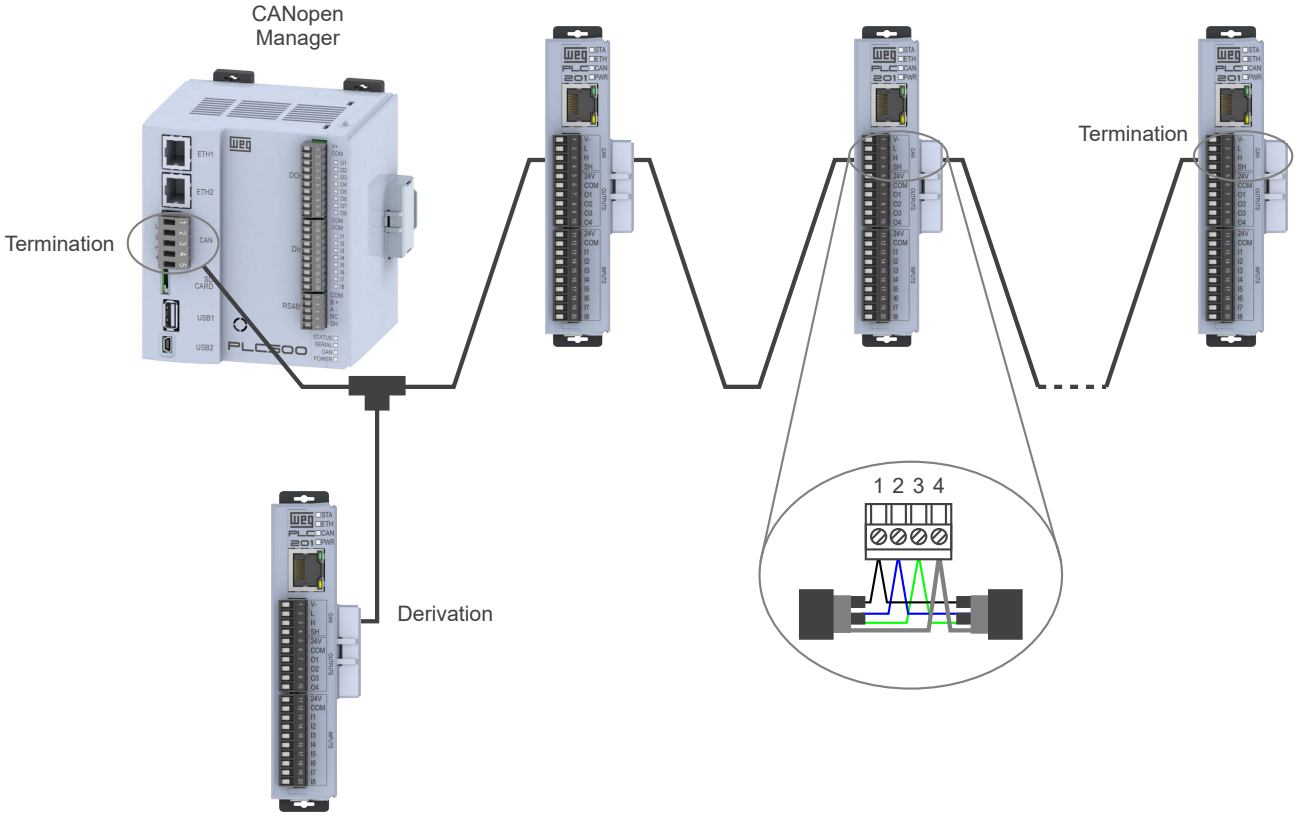


Figure 3.1: *CANopen network installation example for NMT server mode.*

In order to avoid problems with current circulation caused by difference of potential among ground connections, it is necessary that all the devices be connected to the same ground point.

4 PRODUCT

Allows access to status and configuration parameters of the product.

Parameters P0000 to P0999 refer to the product. Parameters above P1000 refer to accessories and observe the following logic:

P-x-y-z-w

X-Accessory model as per: 1-Digital Models; 3-Analog Inputs (AI, TH, RTD); 5-Analog Outputs; 7-Load Cell Input; 9-Smart Connection.

Y-Intrabus address of the accessory depending on the position it is connected to: 1-Slot 1 (first accessory); 2-Slot 2 (second accessory); ... 8-Slot 8 (eighth accessory).

NOTE!
This manual does not present the description of the parameters for all intrabus addresses, but Slot 1, which is the same for the others. For example: if you want to know the description of P1200, P1300, P1400, P1500, P1600, P1700 or P1800, just see the description of P1100.

NOTE!
By default, product parameters **are not retentive**. For a parameter or settings to be maintained after the PLC201 is turned off, it is necessary to save the parameters in Flash memory through P0204.

NOTE!
Product parameters may change depending on the model.

NOTE!
The full list of parameters can be seen in the Section A QUICK REFERENCES on page A-1.

4.1 STATUS

Parameters for status indications and reading of the main module inputs.

4.1.1 Communication

4.1.1.1 CAN

P0605: CAN - Controller Status

Adjustable Range:	0 ... 5	**Factory Setting:**	0
Properties:	ro, enum		

Description:

It allows identifying if the CAN interface is active and if the communication has errors.

Indication	Description
0 = Inactive	CAN interface inactive.
1 = Auto-baud	-
2 = CAN Active	CAN interface active and without errors.
3 = Warning	The CAN controller reached the *warning* state.
4 = Passive Error	The CAN controller reached the *passive error* state.
5 = Bus Off	The CAN controller reached the *bus off* state.

P0606: CAN - CAN RX Telegrams

Adjustable Range:	0 ... 65535	**Factory Setting:**	0
Properties:	ro, 16bit		

Description:

This parameter works as a cyclic counter that is incremented every time a CAN telegram is received. It provides feedback to the operator if the device is able to communicate with the network.

P0607: CAN - CAN TX Telegrams

Adjustable Range:	0 ... 65535	**Factory Setting:**	0
Properties:	ro, 16bit		

Description:

This parameter works as a cyclic counter that is incremented every time a CAN telegram is transmitted. It provides feedback to the operator if the device is able to communicate with the network.

P0608: CAN - Bus Off Counter

Adjustable Range:	0 ... 65535	**Factory Setting:**	0
Properties:	ro, 16bit		

Description:

Cyclic counter that indicates the number of times the equipment went into the bus off state on the CAN network.

P0609: CAN - Lost Telegrams

Adjustable Range:	0 ... 65535	**Factory Setting:**	0
Properties:	ro, 16bit		

Description:

Cyclic counter that indicates the number of messages the CAN interface received but could not be processed by the device. In case the number of lost messages frequently increases, it is recommended to reduce the baud rate used for the CAN network.

P0610: CAN - CANopen Communication Status

Adjustable Range:	0 ... 5	**Factory Setting:**	0
Properties:	ro, enum		

Description:

It indicates the status of the board in relation to the CANopen network, informing if the protocol has been enabled and if the error control service is active (*Node Guarding* or *Heartbeat*).

Indication	Description
0 = Disabled	CANopen protocol disabled.
1 = Reserved	-
2 = Comm Enabled	Communication enabled.
3 = Error Ctrl. Enab.	Communication enabled and error control enabled (*Node Guarding/Heartbeat*).
4 = Guarding Error	*Node Guarding* error occurred.
5 = Heartbeat Error	*Heartbeat* error occurred.

P0611: CAN - CANopen Node Status

Adjustable Range:	0 ... 4	**Factory Setting:**	0
Properties:	ro, enum		

Description:

Each server in the CANopen network has a state machine that controls its behavior in relation to communication. This parameter indicates in which state the device is.

Indication	Description
0 = Inactive	CANopen protocol disabled.
1 = Initialization	Communication with the device is not possible during this step, which is completed automatically.
2 = Stopped	Only the NMT object is available.
3 = Operational	All communication objects are available.
4 = PreOperational	It is possible to communicate with the slave, but the PDOs are not available for operation.

4.2 CONFIGURATION

It allows accessing the product setting parameters.

4.2.1 Communication

4.2.1.1 CAN

P0600: CAN - Address

Adjustable Range:	1 ... 127	**Factory Setting:**	2
Properties:	rw, 16bit		

Description:

It allows viewing the device address used for CAN communication.

P0601: CAN - Baud Rate

Adjustable Range:	0 ... 7	**Factory Setting:**	0
Properties:	rw, enum		

Description:

It allows viewing the value of the CAN interface baud rate in bits per second.

Indication	Description
0 = 1 Mbit/s	CAN baud rate.
1 = 800 Kbit/s	CAN baud rate.
2 = 500 Kbit/s	CAN baud rate.
3 = 250 Kbit/s	CAN baud rate.
4 = 125 Kbit/s	CAN baud rate.
5 = 100 Kbit/s	CAN baud rate.
6 = 50 Kbit/s	CAN baud rate.
7 = 20 Kbit/s	CAN baud rate.

P0602: CAN - Bus Off Reset

Adjustable Range:	0 ... 1	**Factory Setting:**	0
Properties:	rw, enum		

Description:

It allows programming the behavior of the equipment when detecting a *bus off* error on the CAN interface.

Indication	Description
0 = Manual	If bus off occurs, the LED indicators will signal this condition and the communication will be disabled. The action programmed in parameter P0624 - Action for Communication Error will be performed. For the equipment to communicate through the CAN interface again, it will be necessary to disable and enable the interface, or restart the product.
1 = Automatic	If bus off occurs, the communication will be restarted automatically and the error will be ignored. In this case, there will be no indication on the LEDs, and the action for communication error will not be performed.

P0618: Termination resistor

Adjustable Range:	0 ... 255	**Factory Setting:**	0
Properties:	rw, enum		

Description:

It connects/disconnects the network internal termination resistor.

Indication	Description
0 = Not connected	Termination resistor disconnected.
1 = Connected	Termination resistor connected.

P0624: Action for Communication Error

Adjustable Range:	0 ... 1	**Factory Setting:**	0
Properties:	rw, enum		

Description:

It allows configuring the protection tripping mode for communication error.

Indication	Description
0 = Alarm	No action is taken; an alarm is indicated.
1 = Fault	It actuates on the outputs as programmed in the error mode of each output (P0904 and P0906 for the main unit outputs. For the accessories, check the parameter for each model and position).

5 OPERATION IN THE CANOPEN NETWORK

5.1 ACCESS TO THE DATA

Each server of the CANopen network has a list called object dictionary that contains all the data accessible via network. Each object of this list is identified with an index, which is used during the equipment configuration as well as during message exchanges. This index is used to identify the object being transmitted.

5.2 CYCLIC DATA

Cyclic data is transmitted through Procces Data Objects (PDOs) and is the data normally used for status monitoring and equipment control. For CANopen protocol, the interface supports 32 receive PDOs and 32 transmit PDOs and is necessary the configuration to be made both at the server and manager.

5.3 ACYCLIC DATA

In addition to the cyclic data, the interface also provides acyclic data via Service Data Objects (SDOs). Using this type of communication, you can access any equipment parameter. Access to this type of data is commonly done using instructions for reading or writing data, which should indicate the index and sub-index to the desired parameter. The Item 6.4 MANUFACTURER SPECIFIC OBJECTS on page 6-2 describes how to address the parameters for PLC201 Programmable Logic Controller.

5.4 COMMUNICATION OBJECTS - COB

There is a specific set of objects that are responsible for the communication among the network devices. Those objects are divided according to the type of data and the way they are sent or received by a device. The Table 5.1 on page 5-1 shows the communication objects (COBs) that are described by the specification:

Table 5.1: *Types of Communication Objects (COBs)*

Type of object	Description
Service Data Object (SDO)	SDOs are objects responsible for the direct access to the object dictionary of a device. By means of messages using SDO, it is possible to indicate explicitly (by the object index) what data is being handled. There are two SDO types: Client SDO, responsible for doing a read or write request to a network device, and the Server SDO, responsible for taking care of that request. Since SDO are usually used for the configuration of a network node, they have less priority than other types of message.
Process Data Object (PDO)	PDOs are used for accessing equipment data without the need of indicating explicitly which dictionary object is being accessed. Therefore, it is necessary to configure previously which data the PDO will be transmitting (data mapping). There are also two types of PDO: Receive PDO and Transmit PDO. They are usually utilized for transmission and reception of data used in the device operation, and for that reason they have higher priority than the SDO.
Emergency Object (EMCY)	This object is responsible for sending messages to indicate the occurrence of errors in the device. When an error occurs in a specific device (EMCY producer), it can send a message to the network. In the case that any network device be monitoring that message (EMCY consumer), it can be programmed so that an action be taken (disabling the other devices, error reset, etc.).
Syncronization Object (SYNC)	In the CANopen network, it is possible to program a device (SYNC producer) to send periodically a synchronization message for all the network devices. Those devices (SYNC consumers) will then be able, for instance, to send a certain datum that needs to be made available periodically.
Network Management (NMT)	Every CANopen network needs a manager that controls the other devices (servers) in the network. This manager will be responsible for a set of services that control the server communications and their state in the CANopen network. The servers are responsible for receiving the commands sent by the manager and for executing the requested actions. The protocol describes two types of service: device control service, with which the manager controls the state of each network server, and error control service (Node Guarding an Heartbeat), with which the device sends periodic messages to inform that the connection is active.

All the communication of the server with the network is performed using those objects, and the data that can be accessed are the existent in the device object dictionary.

5.5 COB-ID

A telegram of the CANopen network is always transmitted by a communication object (COB). Every COB has an identifier that indicates the type of data that is being transported. This identifier, called COB-ID has an 11 bit size, and it is transmitted in the identifier field of a CAN telegram. It can be subdivided in two parts:

Function Code				Address						
bit 10	bit 9	bit 8	bit 7	bit 6	bit 5	bit 4	bit 3	bit 2	bit 1	bit 0

- Function Code: indicates the type of object that is being transmitted.
- Adrress: indicates with which network device the telegram is linked.

The Table 5.2 on page 5-2 presents the standard values for the different communication objects. Notice that the standard value of the object depends on the server address, with the exception of the COB-ID for NMT and SYNC, which are common for all the network elements. Those values can also be changed during the device configuration stage.

Table 5.2: *COB-ID for the different objects*

COB	Function Code (bits 10-7)	COB-ID Resultant COB-ID (function + address)
NMT	0000	0
SYNC	0001	128 (80h)
EMCY	0001	129 - 255 (81h - FFh)
PDO1 (tx)	0011	385 - 511 (181h - 1FFh)
PDO1 (rx)	0100	513 - 639 (201h - 27Fh)
PDO2 (tx)	0101	641 - 767 (281h - 2FFh)
PDO2 (rx)	0110	769 - 895 (301h - 37Fh)
PDO3 (tx)	0111	897 - 1023 (381h - 3FFh)
PDO3 (rx)	1000	1025 - 1151 (401h - 47Fh)
PDO4 (tx)	1001	1153 - 1279 (481h - 4FFh)
PDO4 (rx)	1010	1281 - 1407 (501h - 57Fh)
SDO (tx)	1011	1409 - 1535 (581h - 5FFh)
SDO (rx)	1100	1537 - 1663 (601h - 67Fh)
Node Guarding/Heartbeat	1110	1793 - 1919 (701h - 77Fh)

5.6 EDS FILE

Each device on an CANopen network has an EDS configuration file, which contains information about the device functions on the network. This file is used by a manager or configuration software to program devices present at CANopen network.

It is important to note if the EDS configuration file is compatible with the firmware version of the PLC201 Programmable Logic Controller. The EDS file is available from WEG website (http://www.weg.net).

6 OBJECT DICTIONARY

The object dictionary is a list containing several equipment data which can be accessed via CANopen network. An object of this list is identified by means of a 16-bit index, and it is based in that list that all the data exchange between devices is performed.

The CiA DS 301 document defines a set of minimum objects that every CANopen network server must have. The objects available in that list are grouped according to the type of function they execute. The objects are arranged in the dictionary according the Table 6.1 on page 6-1:

Table 6.1: *Object dictionary groupings*

Index	Objects	Description
0001h - 025Fh	Data type definition	Used as reference for the data type supported by the system.
1000h - 1FFFh	Communication objects	They are objects common to all the CANopen devices. They contain general information about the equipment and also data for the communication configuration.
2000h – 5FFFh	Manufacturer specific objects	In this range, each CANopen equipment manufacturer is free to define which data those objects will represent.
6000h – 9FFFh	Standardized device objects	This range is reserved to objects that describe the behavior of similar equipment, regardless of the manufacturer.

The other indexes that are not referred in this list are reserved for future use.

6.1 DICTIONARY STRUCTRE

The general structure of the dictionary has the following format:

Index	Object	Name	Type	Access

- **Index:** indicates directly the object index in the dictionary.
- **Object:** describes which information the index stores (simple variable, array, record, etc.).
- **Name:** contains the name of the object in order to facilitate its identification.
- **Type:** indicates directly the stored data type. For simple variables, this type may be an integer, a float, etc. For arrays, it indicates the type of data contained in the array. For records, it indicates the record format according to the types described in the first part of the object dictionary (indexes 0001h – 0360h).
- **Access:** informs if the object in question is accessible only for reading (ro), for reading and writing (rw), or if it is a constant (const).

For objects of the array or record type, a sub-index that is not described in the dictionary structure is also necessary.

6.2 DATA TYPE

The first part of the object dictionary (index 0001h – 025Fh) describes the data types that can be accessed at a CANopen network device. They can be basic types, as integers and floats, or compound types formed by a set of entries, as records and arrays.

6.3 COMMUNICATION PROFILE - COMMUNICATION OBJECTS

The indexes from 1000h to 1FFFh in the object dictionary correspond to the part responsible for the CANopen network communication configuration. Those objects are common to all the devices, however only a few are obligatory. A list with the objects of this range that are supported by the Programmable Logic Controller PLC201 is presented in the Table 6.2 on page 6-2.

Table 6.2: Object list – Communication Profile

Index	Object	Name	Type	Access
1000h	VAR	device type	UNSIGNED32	ro
1001h	VAR	error register	UNSIGNED8	ro
1005h	VAR	COB-ID SYNC	UNSIGNED32	rw
100Ch	VAR	guard time	UNSIGNED16	rw
100Dh	VAR	life time factor	UNSIGNED8	rw
1016h	ARRAY	consume heartbeat time	UNSIGNED32	rw
1017h	VAR	producer heartbeat time	UNSIGNED16	rw
1018h	RECORD	Identity Object	Identity	ro
Server SDO Parameter				
1200h	RECORD	1st Server SDO parameter	SDO Parameter	ro
Receive PDO Communication Parameter				
1400h	RECORD	1st receive PDO Parameter	PDO CommPar	rw
1401h	RECORD	2nd receive PDO Parameter	PDO CommPar	rw
1402h	RECORD	3rd receive PDO Parameter	PDO CommPar	rw
1403h	RECORD	4th receive PDO Parameter	PDO CommPar	rw
...	...	...	...	...
141Fh	RECORD	32nd receive PDO Parameter	PDO CommPar	rw
Receive PDO Mapping Parameter				
1600h	RECORD	1st receive PDO mapping	PDO Mapping	rw
1601h	RECORD	2nd receive PDO mapping	PDO Mapping	rw
1602h	RECORD	3rd receive PDO mapping	PDO Mapping	rw
1603h	RECORD	4th receive PDO mapping	PDO Mapping	rw
...	...	...	...	...
161Fh	RECORD	32nd receive PDO mapping	PDO Mapping	rw
Transmit PDO Communication Parameter				
1800h	RECORD	1st transmit PDO Parameter	PDO CommPar	rw
1801h	RECORD	2nd transmit PDO Parameter	PDO CommPar	rw
1802h	RECORD	3rd transmit PDO Parameter	PDO CommPar	rw
1803h	RECORD	4th transmit PDO Parameter	PDO CommPar	rw
...	...	...	...	...
181Fh	RECORD	32nd transmit PDO Parameter	PDO CommPar	rw
Transmit PDO Mapping Parameter				
1A00h	RECORD	1st transmit PDO mapping	PDO Mapping	rw
1A01h	RECORD	2nd transmit PDO mapping	PDO Mapping	rw
1A02h	RECORD	3rd transmit PDO mapping	PDO Mapping	rw
1A03h	RECORD	4th transmit PDO mapping	PDO Mapping	rw
...	...	...	...	...
1A1Fh	RECORD	32nd transmit PDO mapping	PDO Mapping	rw

These objects can only be read and written via the CANopen network, it is not available in other network interface. The network manager, in general, is the equipment responsible for setting up the equipment before starting the operation. The EDS configuration file brings the list of all supported communication objects.

Refer to Item 7 COMMUNICATION OBJECTS DESCRIPTION on page 7-1 for more details on the available objects in this range of the objects dictionary.

6.4 MANUFACTURER SPECIFIC OBJECTS

For indexes from 2000h to 5FFFh, each manufacture is free to define which objects will be present, and also the type and function of each one. In the case of the PLC201, the whole list of parameters was made available in this object range. It is possible to operate the PLC201 by means of these parameters, carrying out any function that the PLC201 can execute. The parameters were made available starting from the index 2000h, and by adding their Net Id to this index their position in the dictionary is obtained. To identify how the parameters are distributed in the object dictionary, refer to the Item A QUICK REFERENCES on page A-1.

In order to be able to program the PLC201 operation correctly via the CANopen network, it is necessary to know its operation through the parameters.

Refer to the PLC201 Programmable Logic Controller programming manual for a complete list of the parameters and their detailed description.

Network markers are also available and can be used in the controller programming software to develop the equipment's operating logic. The following table illustrates how the markers are distributed in the object dictionary.

Table 6.3: *Objects list – Manufacturer Specific*

Index	Object	Name	Type	Access
Network Input Data – Byte Access				
4E7Ch	VAR	Network Input Byte 2000 – %IB2000	UNSIGNED8	rw
4E7Dh	VAR	Network Input Byte 2001 – %IB2001	UNSIGNED8	rw
4E7Eh	VAR	Network Input Byte 2002 – %IB2002	UNSIGNED8	rw
...		...	...	...
507Bh	VAR	Network Input Byte 2511 – %IB2511	UNSIGNED8	rw
Network Input Data – Word Access				
507Ch	VAR	Network Input Word 2000 – %IW2000	UNSIGNED16	rw
507Eh	VAR	Network Input Word 2002 – %IW2002	UNSIGNED16	rw
5080h	VAR	Network Input Word 2004 – %IW2004	UNSIGNED16	rw
...		...	...	...
527Ah	VAR	Network Input Word 2510 – %IW2510	UNSIGNED16	rw
Network Input Data – Double Word Access				
527Ch	VAR	Network Input Double Word 2000 – %ID2000	UNSIGNED32	rw
5280h	VAR	Network Input Double Word 2004 – %ID2004	UNSIGNED32	rw
5284h	VAR	Network Input Double Word 2008 – %ID2008	UNSIGNED32	rw
...		...	...	...
5478h	VAR	Network Input Double Word 2508 – %ID2508	UNSIGNED32	rw
Network Output Data – Byte Access				
547Ch	VAR	Network Output Byte 2000 – %QB2000	UNSIGNED8	rw
547Dh	VAR	Network Output Byte 2001 – %QB2001	UNSIGNED8	rw
547Eh	VAR	Network Output Byte 2002 – %QB2002	UNSIGNED8	rw
...		...	...	...
567Bh	VAR	Network Output Byte 2511 – %QB2511	UNSIGNED8	rw
Network Output Data – Word Access				
567Ch	VAR	Network Output Word 2000 – %QW2000	UNSIGNED16	rw
567Eh	VAR	Network Output Word 2002 – %QW2002	UNSIGNED16	rw
5680h	VAR	Network Output Word 2004 – %QW2004	UNSIGNED16	rw
...		...	...	...
587Ah	VAR	Network Output Word 2510 – %QW2510	UNSIGNED16	rw
Network Output Data – Double Word Access				
587Ch	VAR	Network Output Double Word 2000 – %QD2000	UNSIGNED32	rw
5880h	VAR	Network Output Double Word 2004 – %QD2004	UNSIGNED32	rw
5884h	VAR	Network Output Double Word 2008 – %QD2008	UNSIGNED32	rw
...		...	...	...
5A78h	VAR	Network Output Double Word 2508 – %QD2508	UNSIGNED32	rw

NOTE!
The Byte, Word and Double Word input markers share the same internal memory area in the product. Thus, for example, the markers %IB2000 and %IB2001 occupy the same memory area as the marker %IW2000. Different objects were created only to make objects of different sizes available for data mapping via CANopen. The same applies to the output area.

NOTE!
The data types used in these objects are defined as 8, 16, or 32-bit unsigned integer. This type is used to define the size of the data used in CANopen communication only. The actual type that the marker represents, however, depends on the type declared in the controller programming software. The marker %QD2000, for example, may represent a float data type, depending on what was declared in the product programming software.

NOTE!
Input network markers can be mapped into receive PDOs, while output network markers can be mapped into transmit PDOs.

6.5 DEVICE PROFILE - OBJECTS FOR GENERIC I/O MODULES

The CANopen documentation also includes suggestions for standardization of certain device types. The PLC201 Programmable Logic Controller follows the CiA DPS 401 – Device Profile for Generic I/O Modules. This document describes a set of objects that must be common for I/O modules, regardless of the manufacturer. This makes the interaction between devices with the same function easier (as for remote I/O modules), because the data, as well the device behavior, are made available in a standardized manner.

The indexes from 6000h to 9FFFh were reserved for these objects. It is possible to operate PLC201 Programmable Logic Controller through the CANopen network, both using parameters (located from the index 2000h) as well these standardized objects.

Refer to Item 8 CiA 401 - DEVICE PROFILE FOR GENERIC I/O MODULES on page 8-1 for more details on the available objects in this range of the objects dictionary.

7 COMMUNICATION OBJECTS DESCRIPTION

This item describes in detail each of the communication objects available for the PLC201 Programmable Logic Controller. It is necessary to know how to operate these objects to be able to use the available functions for the PLC201 Programmable Logic Controller communication.

7.1 IDENTIFICATION OBJECT

There is a set of objects in the dictionary which are used for equipment identification; however, they do not have influence on their behavior in the CANopen network. Some of these objects are described below, such as: Object 1000h - *Device Type*, Object 1001h - *Error Register* and Object 1018h - *Identity Objec*.

7.1.1 Object 1000h - Device Type

This object is described in Table 7.1 on page 7-1 and provides a 32-bit code that describes the type of object and its functionality.

Table 7.1: *Object 1000h - Device Type*

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1000h	0	Device Type	UNSIGNED32	RO	No	0

This code can be divided into two parts: 16 low-order bits describing the type of profile that the device uses, and 16 high-order bits indicating a specific function according to the specified profile.

7.1.2 Object 1001h - Error Register

This object indicates whether or not an error in the device occurred. The type of error registered for the equipment follows what is described in the Table 7.2 on page 7-1.

Table 7.2: *Object 1001h - Error Register*

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1001h	0	Error register	UNSIGNED8	RO	yes	0

If the device presents an error, the equivalent bit must be activated according to Table 7.3 on page 7-1. Furthermore, the first bit (generic error) must be activated in any error situation.

Table 7.3: *Structure of the object Error Register*

Bit	Meaning
0	Generic error
1	Currrent
2	Voltage
3	Temperature
4	Communication
5	Reservaded (always 0)
6	Reservaded (always 0)
7	Specific of the manufacturer

7.1.3 Object 1018h - Identity Object

Provides general information about the device and its identification. The Table 7.4 on page 7-2 presents a description of this object.

Table 7.4: Object 1018h - Identity Object

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1018h	0	Number of the last sub-index	UNSIGNED8	RO	No	4
	1	Vendor ID	UNSIGNED32	RO	No	0000.0123h
	2	Product code	UNSIGNED32	RO	No	0000.1D00h
	3	Revision number	UNSIGNED32	RO	No	According to the equipment firmware version
	4	Serial number	UNSIGNED32	RO	No	Different for each PLC201

In this case, the vendor ID is the number that identifies the manufacturer at the CiA. The product code is defined by the manufacturer according to the type of product. The revision number represents the equipment firmware version. The sub-index 4 is a unique serial number for each Programmable Logic Controller PLC201 in CANopen network.

7.2 SERVICE DATA OBJECTS - SDOS

The SDOs are responsible for the direct access to the object dictionary of a specific device in the network. They are used for the configuration and therefore have low priority, since they do not have to be used for communicating data necessary for the device operation.

There are two types of SDOs: client and server. Basically, the communication initiates with the client (usually the manager of the network) making a read (upload) or write (download) request to a server, and then this server answers the request.

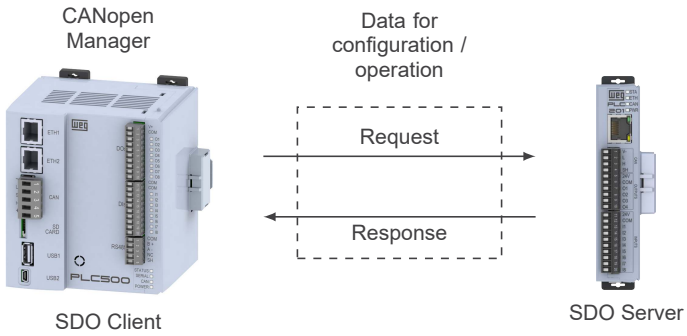


Figure 7.1: Communication between SDO client and server

7.2.1 Object 1200h - SDO Server

The Programmable Logic Controller PLC201 Programmable Logic Controller has only one SDO of the server type, which makes it possible the access to its entire object dictionary. Through it, an SDO client can configure the communication, the parameters and the the PLC201 operation. Every SDO server has an object, of the SDO_PARAMETER type, for its configuration, having the structure in Table 7.5 on page 7-2:

Table 7.5: Objet 1200h - SDO Server

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1200h	0	Number of the last sub-index	UNSIGNED8	RO	No	2
	1	COB-ID Client - Server (rx)	UNSIGNED32	RO	No	600h + Node-ID
	2	COB-ID Server - Client (tx)	UNSIGNED32	RO	No	580h + Node-ID

7.2.2 SDOs Operation

A telegram sent by an SDO has an 8 byte size, with the structure in Table 7.6 on page 7-3:

Table 7.6: SDO Struct

Identifier	8 data bytes							
11 bits	Command	Index		Subindex	Object data			
	byte 0	byte 1	byte 2	byte 3	byte 4	byte 5	byte 6	byte 7

The identifier depends on the transmission direction (rx or tx) and on the address (or Node-ID) of the destination server. For instance, a client that makes a request to a server which Node-ID is 1, must send a message with the identifier 601h. The server will receive this message and answer with a telegram which COB-ID is equal to 581h.

The command code depends on the used function type. For the transmissions from a client to a server, the commands in Table 7.7 on page 7-3 can be used:

Table 7.7: Command codes for SDO client

Command	Function	Description	Object Data
22h	Download	Write object	Not defined
23h	Download	Write object	4 byte
2Bh	Download	Write object	2 byte
2Fh	Download	Write object	1 byte
40h	Upload	Read object	Not used
60h or 70h	Upload segment	Segmented read	Not used

When making the request, the client will indicate through its COB-ID which server address this request is intended for. Thus, only one server (using its respective SDO server) will be able to answer the received telegram to the client. Furthermore, the answer telegram will have also the same structure of the request telegram, but the commands will be different, as shown in Table 7.8 on page 7-3:

Table 7.8: Command codes for SDO server

Command	Function	Description	Object Data
60h	Download	Response to write object	Not used
43h	Upload	Response to read object	4 byte
4Bh	Upload	Response to read object	2 byte
4Fh	Upload	Response to read object	1 byte
41h	Upload segment	Initiates segmented response for read	4 byte
01h … 0Dh	Upload segment	Last data segment for read	8 … 2 bytes

For readings of up to four data bytes, a single message can be transmitted by the server; for the reading of a bigger quantity of bytes, it is necessary that the client and the server exchange multiple telegrams.

A telegram is only completed after the acknowledgement of the server to the request of the client. If any error is detected during telegram exchanges (for instance, no answer from the server), the client will be able to abort the process by means of a warning message with the command code equal to 80h.

NOTE!
When the SDO is used for writing in objects that represent the PLC201 parameters (objects starting from the index 2000h), this value is saved in the nonvolatile memory. Therefore, the configured values are not lost after the equipment is switched off or reset. For all the other objects these values are not saved automatically, so that it is necessary to rewrite the desired values.

E.g.: A client SDO requests for a server at address 1 the reading of the object identified by the index 2000h, sub-index 0 (zero), which represents an 16-bit integer. The manager telegram has the following format:

Identifier	Command	Index		Subindex	Data			
601h	40h	00h	20h	00h	00h	00h	00h	00h

The server responds to the request indicating that the value of the referred object is equal to 999[1]:

Identifier	Command	Index		Subindex	Data			
581h	4Bh	00h	20h	00h	E7h	03h	00h	00h

7.3 PROCESS DATA OBJECTS - PDOS

The PDOs are used to send and receive data used during the device operation, which must often be transmitted in a fast and efficient manner. Therefore, they have a higher priority than the SDOs.

In PDOs, only data are transmitted in the telegram (index and sub-index are omitted). This way, it is possible to do a more efficient transmission, with larger volume of data in a single telegram. However it is necessary to configure previously what is being transmitted by the PDO, so that even without the indication of the index and sub-index, it is possible to know the content of the telegram.

In general, there are two types of PDOs, the receive PDO and the transmit PDO. The transmit PDOs are responsible for sending data to the network, whereas the receive PDOs remain responsible for receiving and handling these data. In this way, it is possible to have communication among server of the CANopen network, it is only necessary to configure one server to transmit information and one or more servers to receive it.

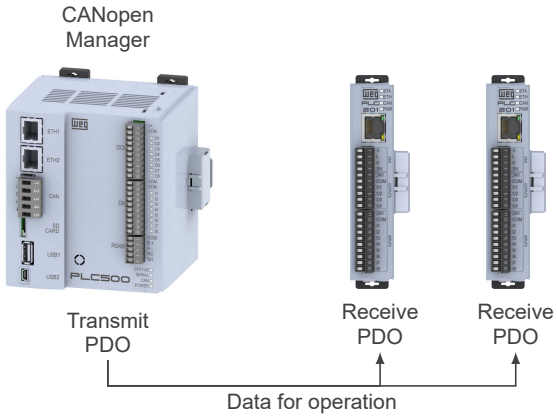


Figure 7.2: *Communication using PDOs*

NOTE!
PDOs can only be transmitted or received when the device is in the operational state.

7.3.1 PDO Mapping Objects

In order to be able to be transmitted by a PDO, it is necessary that an object be mapped into this PDO content. In the description of communication objects (1000h – 1FFFh), the filed “PDO Mapping” informs this possibility. Usually only information necessary for the operation of the device can be mapped, such as enabling commands, device status, reference, etc. Information on the device configuration are not accessible through PDOs, and if it is necessary to access them one must use the SDOs.

For the manufacturer’s specific objects (2000h – 5FFFh), the Table A on page A-1 presents some PDO mapping objects. Read-only parameters (ro) can be used only by transmit PDOs, whereas the other parameters can be used only by receive PDOs.

The EDS file brings the list of all objects available, informing whether the object can be mapped or not.

7.3.2 Receive PDOs

The receive PDOs, or RPDOs, are responsible for receiving data that other devices send to the CANopen network. The Programmable Logic Controller PLC201 has 32 receive PDOs, each one being able to receive

[1] Do not forget that for any integer type of data, the byte transfer order is from the least significant to the most significant.

up to 8 bytes. Each RPDO has two parameters for its configuration, a PDO_COMM_PARAMETER and a PDO_MAPPING, as described next.

PDO_COMM_PARAMETER

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1400h - 141Fh	0	Number of the last sub-index	UNSIGNED8	RO	No	2
	1	COB-ID used by the PDO	UNSIGNED32	RW	No	200h / 300h 400h / 500h + Node-ID
	2	Transmission Type	UNSIGNED8	RW	No	254

The sub-index 1 contains the receive PDO COB-ID. Every time a message is sent to the network, this object will read the COB-ID of that message and, if it is equal to the value of this field, the message will be received by the device. This field is formed by an UNSIGNED32 with the structure in Table 7.9 on page 7-5:

Table 7.9: *COB-ID description*

Bit	Value	Description
31 (MSB)	0	PDO is enabled
	1	PDO is disabled
30	0	RTR permitted
29	0	Identifier size = 11 bits
28 - 11	0	Not used, always 0
10 - 0 (LSB)	X	11-bit COB-ID

The bit 31 allows enabling or disabling the PDO. The bits 29 and 30 must be kept in 0 (zero), they indicate respectively that the PDO accepts remote frames (RTR frames) and that it uses an 11-bit identifier. Since the PLC201 does not use 29-bit identifiers, the bits from 28 to 11 must be kept in 0 (zero), whereas the bits from 10 to 0 (zero) are used to configure the COB-ID for the PDO.

The sub-index 2 indicates the transmission type of this object, according to the Table 7.10 on page 7-5.

Table 7.10: *Transmission type description*

Type of transmission	PDOs transmission				
	Cyclic	Acyclic	Synchronous	Asynchronous	RTR
0		•	•		
1 - 240	•		•		
241 - 251	Reserved				
252			•		•
253				•	•
254				•	
255				•	

- **Values 0 – 240:** Any RPDO programmed in this range presents the same performance. When detecting a message, it will receive the data; however it won't update the received values until detecting the next SYNC telegram.
- **Values 252 e 253:** Not allowed for receive PDOs.
- **Values 254 e 255:** When receiving a message, its values are updated immediately. There is no relationship with the synchronization object.

PDO_MAPPING

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1600h - 161Fh	0	Number of mapped objects	0 = disable 1-4=number of mapped objects	RO	No	0
	1 - 4	1 to 4 object mapped in the PDO	UNSIGNED32	RW	No	According EDS file

This parameter indicates the mapped objects in the PLC201 Programmable Logic Controller receive PDOs. The default value of these objects is indicated in the product's EDS file. It is possible to map up to 4 different objects for each RPDO, provided that the total length does not exceed eight bytes. The mapping of an object is done indicating its index, sub-index[2] and size (in bits) in an UNSIGNED32, field with the following format:

UNSIGNED32		
Index (16 bits)	Sub-index (8 bits)	Objects size (8 bits)

For instance, analyzing the receive PDO standard mapping:

- **Sub-index 0 = 2:** This PDO has two mapped objects.
- **Sub-index 1 = 2386.0020h:** The first mapped object has an index equal to 2386h, sub-index 0 (zero), and a size of 32 bits. This object corresponds to the parameter P0902 - Digital Outputs (DOs).
- **Sub-index 2 = 244E.0020h:** The second mapped object has an index equal to 244Eh, sub-index 0 (zero), and a size of 32 bits. This object corresponds to the parameter P1102 - Slot 1 - Digital Outputs (DOs).

It is possible to modify this mapping by changing the quantity or the number of mapped objects. Remembering that only 8 bytes can be mapped at maximum.

NOTE!

- In order to change the mapped objects in a PDO, it is first necessary to write the value 0 (zero) in the sub-index 0 (zero). In that way the values of the sub-indexes 1 to 4 can be changed. After the desired mapping has been done, one must write again in the sub-index 0 (zero) the number of objects that have been mapped, enabling again the PDO.
- Do not forget that PDOs can only be received if the device is in the operational state.

7.3.3 Transmit PDOs

The transmit PDOs, or TPDOs, are responsible for transmitting data for the CANopen network. The Programmable Logic Controller PLC201 Programmable Logic Controller has 32 transmit PDOs, each one being able to transmit up to 8 data bytes. In a manner similar to RPDOs, each TPDO has two parameters for its configuration, a PDO_COMM_PARAMETER and a PDO_MAPPING, as described next.

PDO_COMM_PARAMETER

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1800h - 181Fh	0	Number of the last sub-index	UNSIGNED8	RO	No	5
	1	COB-ID used by the PDO	UNSIGNED32	RW	No	180h / 280h / 380h / 480h + Node-ID
	2	Transmission Type	UNSIGNED8	RW	No	254
	3	Time between transmissions	UNSIGNED16	RW	No	-
	4	Compability entry	UNSIGNED8	RW	No	-
	5	Event timer	UNSIGNED16	RW	No	0

The sub-index 1 contains the transmit PDO COB-ID. Every time this PDO sends a message to the network, the identifier of that message will be this COB-ID. The structure of this field is described in Table 7.9 on page 7-5.

The sub-index 2 indicates the transmission type of this object, which follows the Table 7.10 on page 7-5 description. Its working is however different for transmit PDOs:

- **Value 0:** Indicates that the transmission must occur immediately after the reception of a SYNC telegram, but not periodically.

[2] If the object is of the VAR type and does not have sub-index, the value 0 (zero) must be indicated for the sub-index.

- **Values 1 – 240:** The PDO must be transmitted at each detected SYNC telegram (or multiple occurrences of SYNC, according to the number chosen between 1 and 240).
- **Value 252:** Indicates that the message content must be updated (but not sent) after the reception of a SYNC telegram. The transmission of the message must be done after the reception of a remote frame (RTR frame).
- **Value 253:** The PDO must update and send a message as soon as it receives a remote frame.
- **Value 254:** The object must be transmitted according to the timer programmed in sub-index 5.
- **Value 255:** The object is transmitted automatically when the value of any of the objects mapped in this PDO is changed. It works by changing the state (Change of State). This type does also allow that the PDO be transmitted according to the timer programmed in sub-index 5.

In the sub-index 3 it is possible to program a minimum time (in multiples of 100 µs) that must elapse after the a telegram has been sent, so that a new one can be sent by this PDO. The value 0 (zero) disables this function.

The sub-index 4 has no function and exists only for compatibility reasons.

The sub-index 5 contains a value to enable a timer for the automatic sending of a PDO. Therefore, whenever a PDO is configured as the asynchronous type, it is possible to program the value of this timer (in multiples of 1 ms), so that the PDO is transmitted periodically in the programmed time.

NOTE!

- The value of this timer must be programmed according to the used transmission rate. Very short times (close to the transmission time of the telegram) are able to monopolize the bus, causing indefinite retransmission of the PDO, and avoiding that other less priority objects transmit their data
- The minimum time allowed for this Function in the Programmable Logic Controller PLC201 is 2 ms.
- It is important to observe the time between transmissions programmed in the sub-index 3, especially when the PDO is programmed with the value 255 in the sub-index 2 (Change of State).
- Do not forget that PDOs can only be received if the server is in the operational state.

PDO_MAPPING

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1A00h - 1A1Fh	0	Number of the last sub-index	UNSIGNED8	RO	No	0
	1 - 4	1 up to 4 object mapped in the PDO	UNSIGNED32	RW	No	0

The PDO MAPPING for the transmission works in similar way than for the reception, however in this case the data to be transmitted by the PDO are defined. Each mapped object must be put in the list according to the description showed next:

UNSIGNED32		
Index (16 bits)	Sub-index (8 bits)	Object size (8 bits)

For instance, analyzing the transmit PDO standard mapping:

- **Sub-índice 0 = 2:** This PDO has two mapped objects.
- **Sub-índice 1 = 2384.0020h:** The first mapped object has an index equal to 2384h, sub-index 0 (zero), and a size of 32 bits. This object corresponds to the parameter P0900 - Digital Inputs (DIs).
- **Sub-índice 2 = 244C.0020h:** The second mapped object has an index equal to 244Ch, sub- index 0 (zero), and a size of 32 bits. This object corresponds to the parameter P1100 - Slot 1 - Digital Inputs (DIs).

It is possible to modify this mapping by changing the quantity or the number of mapped objects. Remember that a maximum of 8 bytes can be mapped.

NOTE!
In order to change the mapped objects in a PDO, it is first necessary to write the value 0 (zero) in the sub-index 0 (zero). In that way the values of the sub-indexes 1 to 4 can be changed. After the desired mapping has been done, one must write again in the sub-index 0 (zero) the number of objects that have been mapped, enabling again the PDO.

7.4 SYNCHRONIZATION OBJECT - SYNC

This object is transmitted with the purpose of allowing the synchronization of events among the CANopen network devices. It is transmitted by a SYNC producer, and the devices that detect its transmission are named SYNC consumers.

The Programmable Logic Controller PLC201 has the function of a SYNC consumer and, therefore, it can program its PDOs to be synchronous. In turn, the synchronous PDOs are those related to the synchronization object, thus they can be programmed to be transmitted or updated based in this object. The Figure 7.3 on page 7-8 represents the transmission of the SYNC object.

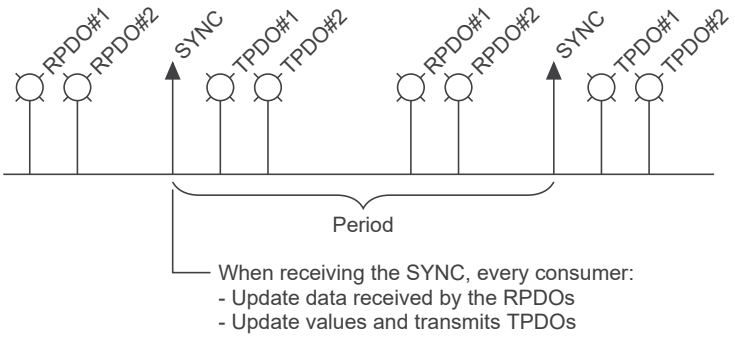


Figure 7.3: *SYNC*

The SYNC message transmitted by the producer does not have any data in its data field, because its purpose is to provide a time base for the other objects. The following object is available for the configuration of the SYNC consumer:

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1005h	0	COB-ID SYNC	UNSIGNED32	RW	No	80h

NOTE!
The period of the SYNC telegrams must be programmed in the producer according to the transmission rate and the number of synchronous PDOs to be transmitted. There must be enough time for the transmission of these objects, and it is also recommended that there is a tolerance to make it possible the transmission of asynchronous messages, such as EMCY, asynchronous PDOs and SDOs.

7.5 NETWORK MANAGEMENT - NMT

The network management object is responsible for a series of services that control the communication of the device in a CANopen network. For this object, the services of node control and error control are available (using Node Guarding or Heartbeat).

7.5.1 Server State Control

With respect to the communication, a CANopen network device can be described by the state machine in Figure 7.4 on page 7-9:

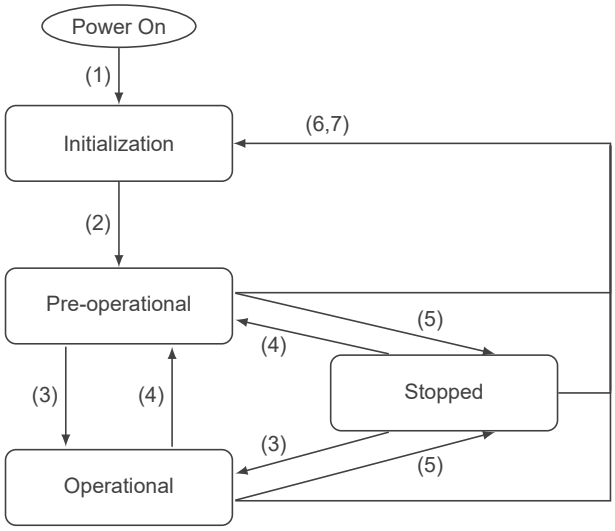


Figure 7.4: *CANopen node state diagram*

Table 7.11: *Transitions Description*

Transition	Description
1	The device is switched on and initiates the initialization (automatic)
2	Initialization concluded, it goes to the preoperational state (automatic)
3	It receives the Start Node command for entering the operational state
4	It receives the Enter Pre-Operational command, and goes to the preoperational state
5	It receives the Stop Node command for entering the stopped state
6	It receives the Reset Node command, when it executes the device complete reset
7	It receives the Reset Communication command, when it reinitializes the object values and the CANopen device communication

During the initialization the Node-ID is defined, the objects are created and the interface with the CAN network is configured. Communication with the device is not possible during this stage, which is concluded automatically. At the end of this stage the server sends to the network a telegram of the Boot-up Object, used only to indicate that the initialization has been concluded and that the server has entered the preoperational state. This telegram has the identifier 700h + Node-ID, and only one data byte with value equal to 0 (zero).

In the preoperational state it is already possible to communicate with the server. But its PDOs are not yet available for operation. In the operational state all the objects are available, whereas in the stopped state only the NMT object can receive or transmit telegrams to the network. The Table 7.12 on page 7-9 shows the objects available for each state.

Table 7.12: *Objects accessible in each state*

	Initialization	Preoperational	Operational	Stopped
PDO			•	
SDO		•	•	
SYNC		•	•	
EMCY		•	•	
Boot-up	•			
NMT		•	•	•

This state machine is controlled by the network manager, which sends to each server the commands so that the desired state change be executed. These telegrams do not have confirmation, what means that the server

does only receive the telegram without returning an answer to the manager. The received telegrams have the following structure:

Identifier	byte 1	byte 2
00h	Command Code	Destination Node-ID

Table 7.13: *Commands for the state transition*

Command Code	Destination Node ID
1 = START node (transition 3) 2 = STOP node (transition 4) 128 = Enter preoperational (transition 5) 129 = Reset node (transition 6) 130 = Reset comunication (transition 7)	0 = All the servers 1 ... 127 = Specific server

The transitions indicated in the command code correspond to the state transitions executed by the node after receiving the command (according to the Figure 7.4 on page 7-9). The Reset node command makes the server execute a complete reset of the device, while the Reset communication command causes the device to reinitialize only the objects pertinent to the CANopen communication.

7.5.2 Error Control - Node Guarding

This service is used to make it possible the monitoring of the communication with the CANopen network, both by the manager and the server as well. In this type of service the manager sends periodical telegrams to the server, which responds to the received telegram. If some error that interrupts the communication occurs, it will be possible to identify this error, because the manager as well as the server will be notified by the Timeout in the execution of this service. The error events are called Node Guarding for the manager and Life Guarding for the server.

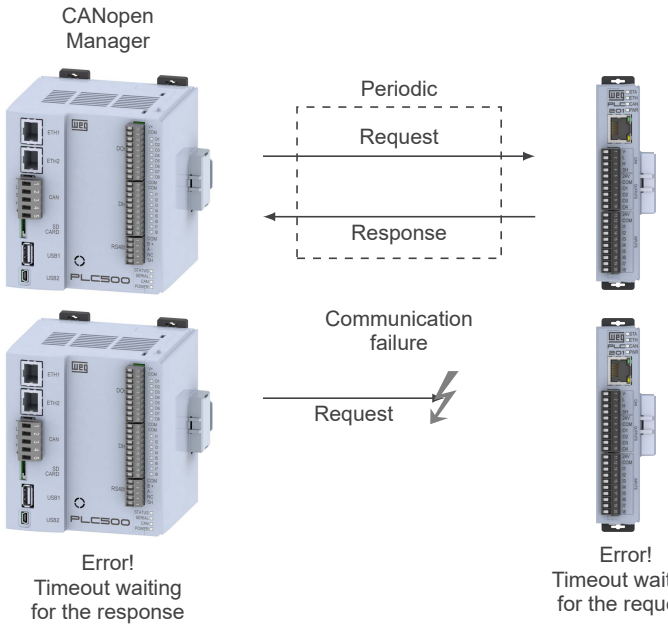


Figure 7.5: *Error control service – Node Guarding*

There are two objects of the dictionary for the configuration of the error detection times for the Node Guarding service:

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
100Ch	0	Guard Time	UNSIGNED16	RW	No	0

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
100Dh	0	Life Time Factor	UNSIGNED8	RW	No	0

The 100Ch object allows programming the time necessary (in milliseconds) for a fault occurrence being detected, in case the server does not receive any telegram from the manager. The 100Dh object indicates how many faults in sequence are necessary until it be considered that there was really a communication error. Therefore, the multiplication of these two values will result in the total necessary time for the communication error detection using this object. The value 0 (zero) disables this function.

Once configured, the server starts counting these times starting from the first Node Guarding telegram received from the network manager. The manager's telegram is of the remote type, not having data bytes. The identifier is equal to 700h + Node-ID of the destination server. However the server response telegram has 1 data byte with the following structure:

Identificador	byte 1	
	bit 7	bit 6 ... 0
700h + Node ID	Toogle	Estado do Escravo

This telegram has one single data byte. This byte contains, in the seven least significant bits, a value to indicate the server state (4 = stopped, 5 = operational and 127 = preoperational), and in the eighth bit, a value that must be changed at every telegram sent by the server (toggle bit).

If the Programmable Logic Controller PLC201 detects an error using this mechanism, it will turn automatically to the preoperational state and indicate with the LED of error.

NOTE!

- This object is active even in the stopped state (see Table 7.12 on page 7-9).
- The value 0 (zero) in any of these two objects will disable this function.
- If after the error detection the service is enabled again, then the error indication will be removed.
- The minimum value accepted by the PLC201 Programmable Logic Controller is 2 ms. But considering the transmission rate and the number of nodes in the network, the times programmed for this function must be consistent, so that there is enough time for the transmission of the telegrams and also that the rest of the communication be able to be processed.
- For any server only one of the two services - Heartbeat or Node Guarding – can be enabled.

7.5.3 Error Control - Heartbeat

The error detection through the Heartbeat mechanism is done using two types of objects: the Heartbeat producer and the Heartbeat consumer. The producer is responsible for sending periodic telegrams to the network, simulating a heartbeat, indicating that the communication is active and without errors. One or more consumers can monitor these periodic telegrams, and if they cease occurring, it means that any communication problem occurred.

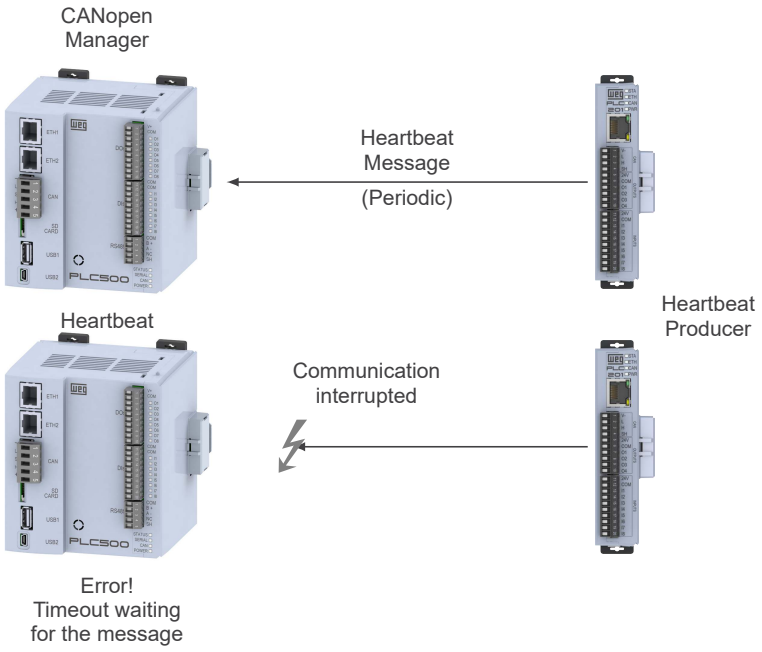


Figure 7.6: *Error control service – Heartbeat*

One device of the network can be both producer and consumer of heartbeat messages. For example, the network manager can consume messages sent by a server, making it possible to detect communication problems with the manager, and simultaneously the server can consume heartbeat messages sent by the manager, also making it possible to the server detect communication fault with the manager.

The PLC201 Programmable Logic Controller has the producer and consumer of heartbeat services. As a consumer, it is possible to program different producers to be monitored by the equipment:

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1016h	0	Number of the last sub-index	UNSIGNED8	RO	No	4
	1 - 4	Consumer Heartbeat Time 1 – 4	UNSIGNED32	RW	No	0

At sub-indexes 1 to 4, it is possible to program the consumer by writing a value with the following format:

UNSIGNED32		
Reserved (8 bits)	Node-ID (8 bits)	HeartBeat time (16 bits)

- Node-ID: it allows programming the Node-ID for the heartbeat producer to be monitored.
- Heartbeat time: it allows programming the time, in 1 millisecond multiples, until the error detection if no message of the producer is received. The value 0 (zero) in this field disables the consumer.

Once configured, the heartbeat consumer initiates the monitoring after the reception of the first telegram sent by the producer. In case that an error is detected because the consumer stopped receiving messages from the heartbeat producer, it will turn automatically to the preoperational state and indicate with the LED of error.

As a producer, the PLC201 Programmable Logic Controller has an object for the configuration of that service:

Index	Sub-index	Name	Type	Access	PDO Mapping	Value
1017h	0	Producer Heartbeat Time	UNSIGNED16	RW	No	0

The 1017h object allows programming the time in milliseconds during which the producer has to send a heartbeat telegram to the network. Once programmed, the device initiates the transmission of messages with the following format:

Identifier	byte 1	
	bit 7	bit 6 ... 0
700h + Node ID	Always 0	Server State

NOTE!

- This object is active even in the stopped state (see Table 7.12 on page 7-9).
- The value 0 (zero) in any of these two objects will disable this function.
- If after the error detection the service is enabled again, then the error indication will be removed.
- The minimum value accepted by the PLC201 Programmable Logic Controller is 2 ms. But considering the transmission rate and the number of nodes in the network, the times programmed for this function must be consistent, so that there is enough time for the transmission of the telegrams and also that the rest of the communication be able to be processed.
- For any server only one of the two services - Heartbeat or Node Guarding – can be enabled.

7.6 INITIALIZATION PROCEDURE

Once the operation of the objects available for the PLC201 Programmable Logic Controller is known, then it becomes necessary to program the different objects to operate combined in the network. In a general manner, the procedure for the initialization of the objects in a CANopen network follows the description of the flowchart in Figure 7.7 on page 7-13:

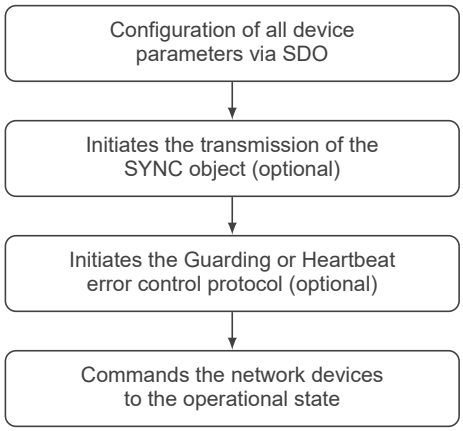


Figure 7.7: *Initialization process flowchart*

It is necessary to observe that the PLC201 Programmable Logic Controller communication objects (1000h to 1FFFh) are not stored in the nonvolatile memory. Therefore, every time the equipment is reset or switched off, it is necessary to redo the communication objects parameter setting. The manufacturer specific objects (starting from 2000h that represents the parameters), they are stored in the nonvolatile memory and, thus, could be set just once.

8 CIA 401 - DEVICE PROFILE FOR GENERIC I/O MODULES

This item will describe the common objects for generic I/O modules, defined by the CANopen specification in the document CiA DS 401. The objects mentioned here have similar description and operation, regardless of the manufacturer of the I/O module. This makes easy interoperability and interchangeability between different devices.

The Table 8.1 on page 8-1 shows the list of objects available for the PLC201 Programmable Logic Controller.

Table 8.1: *Object List – Device Profile for Generic I/O Modules*

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6000h	Array	Read Input 8 Bit	UINT8	ro	Yes
6100h	Array	Read Input 16 Bit	UINT16	ro	Yes
6200h	Array	Write Output 8 Bit	UINT8	rw	Yes
6300h	Array	Write Output 16 Bit	UINT16	rw	Yes
6306h	Array	Error Mode Output 16 Bit	UINT16	rw	No
6307h	Array	Error Value Output 16 Bit	UNIT16	rw	No
6401h	Array	Read Analogue Input 16 Bit	UINT16	ro	Yes
6402h	Array	Read Analogue Input 32 Bit	INT32	ro	Yes
6411h	Array	Write Analogue Output 16 Bit	INT16	rw	Yes

8.1 OBJECT 6000H – READ INPUT 8 BIT

It makes possible to read the digital inputs, that are mapped sequentially in each sub-index of the object 6000h with 8-bit size.

For instance, if the main module has 16 digital inputs, these will be mapped in sub-indexes 1 and 2. For the first expansion module with digital inputs, these will be mapped from the next sub-index on.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6000h	0	Number of Entries	UINT8	ro	No
	1	Inputs 1 to 8	UINT8	rw	Yes
	2	Inputs 9 to 16	UINT8	rw	Yes
	3	Inputs 17 to 24	UINT8	rw	Yes
	4	Inputs 25 to 32	UINT8	rw	Yes
	5	Inputs 33 to 40	UINT8	rw	Yes
	6	Inputs 41 to 48	UINT8	rw	Yes
	7	Inputs 49 to 56	UINT8	rw	Yes
	8	Inputs 57 to 64	UINT8	rw	Yes
	9	Inputs 65 to 72	UINT8	rw	Yes
	10	Inputs 73 to 80	UINT8	rw	Yes
	11	Inputs 81 to 88	UINT8	rw	Yes
	12	Inputs 89 to 96	UINT8	rw	Yes
	13	Inputs 97 to 104	UINT8	rw	Yes
	14	Inputs 105 to 112	UINT8	rw	Yes
	15	Inputs 113 to 120	UINT8	rw	Yes
	16	Inputs 121 to 128	UINT8	rw	Yes
	17	Inputs 129 to 136	UINT8	rw	Yes
	18	Inputs 137 to 144	UINT8	rw	Yes
	19	Inputs 145 to 152	UINT8	rw	Yes
	20	Inputs 153 to 160	UINT8	rw	Yes
	21	Inputs 161 to 168	UINT8	rw	Yes
	22	Inputs 169 to 176	UINT8	rw	Yes
	23	Inputs 177 to 184	UINT8	rw	Yes
	24	Inputs 185 to 192	UINT8	rw	Yes
	25	Inputs 193 to 200	UINT8	rw	Yes
	26	Inputs 201 to 208	UINT8	rw	Yes

8.2 OBJECT 6100H – READ INPUT 16 BIT

It makes possible to read the digital inputs, that are mapped sequentially in each sub-index of the object 6100h with 16-bit size.

For instance, if the main module has 16 digital inputs, these will be mapped in sub-index 1. For the first expansion module with digital inputs, these will be mapped from the next sub-index on.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6100h	0	Number of Entries	UINT8	ro	No
	1	Inputs 1 to 16	UINT8	rw	Yes
	2	Inputs 17 to 32	UINT8	rw	Yes
	3	Inputs 33 to 48	UINT8	rw	Yes
	4	Inputs 48 to 64	UINT8	rw	Yes
	5	Inputs 65 to 80	UINT8	rw	Yes
	6	Inputs 81 to 96	UINT8	rw	Yes
	7	Inputs 97 to 112	UINT8	rw	Yes
	8	Inputs 113 to 128	UINT8	rw	Yes
	9	Inputs 129 to 144	UINT8	rw	Yes
	10	Inputs 145 to 160	UINT8	rw	Yes
	11	Inputs 161 to 176	UINT8	rw	Yes
	12	Inputs 177 to 192	UINT8	rw	Yes
	13	Inputs 193 to 208	UINT8	rw	Yes

NOTE!
The objects 6000h and 6100h allow access to the same product data. Only the size of each object changes, allowing different mapping procedure.

NOTE!
For each expansion module, the inputs mapping will be aligned to a new 16-bit sub-index. For example, if the module has 24 inputs, they will be mapped into two 16-bit sub-indexes, and the last 8 bits of the second sub-index will be reserved. The next module added will have its inputs mapped to the next free sub-index.

8.3 OBJECT 6200H – WRITE OUTPUT 8 BIT

It makes possible to write the digital outputs, that are mapped sequentially in each sub-index of the object 6200h with 8-bit size.

For instance, if the main module has 16 digital outputs, these will be mapped in sub-indexes 1 and 2. For the first expansion module with digital outputs, these will be mapped from the next sub-index on.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6200h	0	Number of Entries	UINT8	ro	No
	1	Outputs 1 to 8	UINT8	rw	Yes
	2	Outputs 9 to 16	UINT8	rw	Yes
	3	Outputs 17 to 24	UINT8	rw	Yes
	4	Outputs 25 to 32	UINT8	rw	Yes
	5	Outputs 33 to 40	UINT8	rw	Yes
	6	Outputs 41 to 48	UINT8	rw	Yes
	7	Outputs 49 to 56	UINT8	rw	Yes
	8	Outputs 57 to 64	UINT8	rw	Yes
	9	Outputs 65 to 72	UINT8	rw	Yes
	10	Outputs 73 to 80	UINT8	rw	Yes
	11	Outputs 81 to 88	UINT8	rw	Yes
	12	Outputs 89 to 96	UINT8	rw	Yes
	13	Outputs 97 to 104	UINT8	rw	Yes
	14	Outputs 105 to 112	UINT8	rw	Yes
	15	Outputs 113 to 120	UINT8	rw	Yes
	16	Outputs 121 to 128	UINT8	rw	Yes
	17	Outputs 129 to 136	UINT8	rw	Yes
	18	Outputs 137 to 144	UINT8	rw	Yes
	19	Outputs 145 to 152	UINT8	rw	Yes
	20	Outputs 153 to 160	UINT8	rw	Yes
	21	Outputs 161 to 168	UINT8	rw	Yes
	22	Outputs 169 to 176	UINT8	rw	Yes
	23	Outputs 177 to 184	UINT8	rw	Yes
	24	Outputs 185 to 192	UINT8	rw	Yes
	25	Outputs 193 to 200	UINT8	rw	Yes
	26	Outputs 201 to 208	UINT8	rw	Yes

8.4 OBJECT 6300H – WRITE OUTPUT 16 BIT

It makes possible to write the digital outputs, that are mapped sequentially in each sub-index of the object 6300h with 16-bit size.

For instance, if the main module has 16 digital outputs, these will be mapped in sub-index 1. For the first expansion module with digital outputs, these will be mapped from the next sub-index on.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6300h	0	Number of Entries	UINT8	ro	No
	1	Outputs 1 to 16	UINT8	rw	Yes
	2	Outputs 17 to 32	UINT8	rw	Yes
	3	Outputs 33 to 48	UINT8	rw	Yes
	4	Outputs 48 to 64	UINT8	rw	Yes
	5	Outputs 65 to 80	UINT8	rw	Yes
	6	Outputs 81 to 96	UINT8	rw	Yes
	7	Outputs 97 to 112	UINT8	rw	Yes
	8	Outputs 113 to 128	UINT8	rw	Yes
	9	Outputs 129 to 144	UINT8	rw	Yes
	10	Outputs 145 to 160	UINT8	rw	Yes
	11	Outputs 161 to 176	UINT8	rw	Yes
	12	Outputs 177 to 192	UINT8	rw	Yes
	13	Outputs 193 to 208	UINT8	rw	Yes

NOTE!
The objects 6200h and 6300h allow access to the same product data. Only the size of each object changes, allowing different mapping procedure.

NOTE!
For each expansion module, the outputs mapping will be aligned to a new 16-bit sub-index. For example, if the module has 24 outputs, they will be mapped into two 16-bit sub-indexes, and the last 8 bits of the second sub-index will be reserved. The next module added will have its outputs mapped to the next free sub-index.

8.5 OBJECT 6306H – ERROR MODE OUTPUT 16 BIT

This object defines whether a digital output receives a pre-defined value (object 6307h) in case of an internal error or when the PLC201 Programmable Logic Controller goes to STOP MODE. Each sub-index defines a WORD (16-bit) where each bit of this WORD configures the action for an output.

- 1 - output value is pre-defined in object 6307h;
- 0 - output value maintained in case of error.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6306h	0	Number of Entries	UINT8	ro	No
	1	Outputs 1 to 16	UINT8	rw	Yes
	2	Outputs 17 to 32	UINT8	rw	Yes
	3	Outputs 33 to 48	UINT8	rw	Yes
	4	Outputs 48 to 64	UINT8	rw	Yes
	5	Outputs 65 to 80	UINT8	rw	Yes
	6	Outputs 81 to 96	UINT8	rw	Yes
	7	Outputs 97 to 112	UINT8	rw	Yes
	8	Outputs 113 to 128	UINT8	rw	Yes
	9	Outputs 129 to 144	UINT8	rw	Yes
	10	Outputs 145 to 160	UINT8	rw	Yes
	11	Outputs 161 to 176	UINT8	rw	Yes
	12	Outputs 177 to 192	UINT8	rw	Yes
	13	Outputs 193 to 208	UINT8	rw	Yes

8.6 OBJECT 6307H – ERROR VALUE OUTPUT 16 BIT

In this object, the value that the digital output should present in case of internal error or when the PLC201 Programmable Logic Controller goes to STOP MODE is parameterized. Each sub-Index defines a WORD (16-bit) where each bit of this WORD configures the action for a group of outputs.

- 1 - output value is 1 (on) if enabled on object 6306h;
- 0 - output value is 0 (off) if enabled on object 6306h.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6307h	0	Number of Entries	UINT8	ro	No
	1	Outputs 1 to 16	UINT8	rw	Yes
	2	Outputs 17 to 32	UINT8	rw	Yes
	3	Outputs 33 to 48	UINT8	rw	Yes
	4	Outputs 48 to 64	UINT8	rw	Yes
	5	Outputs 65 to 80	UINT8	rw	Yes
	6	Outputs 81 to 96	UINT8	rw	Yes
	7	Outputs 97 to 112	UINT8	rw	Yes
	8	Outputs 113 to 128	UINT8	rw	Yes
	9	Outputs 129 to 144	UINT8	rw	Yes
	10	Outputs 145 to 160	UINT8	rw	Yes
	11	Outputs 161 to 176	UINT8	rw	Yes
	12	Outputs 177 to 192	UINT8	rw	Yes
	13	Outputs 193 to 208	UINT8	rw	Yes

8.7 OBJECT 6401H – READ ANALOGUE INPUT 16 BIT

Each sub-index of this object has a 16-bit value of an analog input.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6401h	0	Number of Entries	INT16	ro	No
	1	Output 1	INT16	rw	Yes
	2	Output 2	INT16	rw	Yes
	3	Output 3	INT16	rw	Yes
	4	Output 4	INT16	rw	Yes
	5	Output 5	INT16	rw	Yes
	6	Output 6	INT16	rw	Yes
	7	Output 7	INT16	rw	Yes
	8	Output 8	INT16	rw	Yes
	...	...	...	...	...
	10	Output 64	INT16	rw	Yes

8.8 OBJECT 6402H – READ ANALOGUE INPUT 32 BIT

Each sub-index of this object has a 32-bit value of an analog input.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6402h	0	Number of Entries	INT32	ro	No
	1	Output 1	INT32	rw	Yes
	2	Output 2	INT32	rw	Yes
	3	Output 3	INT32	rw	Yes
	4	Output 4	INT32	rw	Yes
	5	Output 5	INT32	rw	Yes
	6	Output 6	INT32	rw	Yes
	7	Output 7	INT32	rw	Yes
	8	Output 8	INT32	rw	Yes
	...	...	...	...	...
	10	Output 64	INT32	rw	Yes

8.9 OBJECT 6411H – WRITE ANALOGUE OUTPUT 16 BIT

Each sub-index of this object writes a 16-bit value to an analog output.

Index	Sub-Index	Name	Type	Acess	PDO Mapping
6411h	0	Number of Entries	INT16	ro	No
	1	Output 1	INT16	rw	Yes
	2	Output 2	INT16	rw	Yes
	3	Output 3	INT16	rw	Yes
	4	Output 4	INT16	rw	Yes
	5	Output 5	INT16	rw	Yes
	6	Output 6	INT16	rw	Yes
	7	Output 7	INT16	rw	Yes
	8	Output 8	INT16	rw	Yes
	...	...	...	...	...
	10	Output 64	INT16	rw	Yes

9 OPERATION IN CANOPEN NETWORK- MANAGER MODE

In addition to operating as a server, the Programmable Logic Controller PLC201 can also operate as manager of the CANopen network. Below are described the characteristics and functions of the PLC201 as manager of the CANopen network.

9.1 ENABLING OF THE MANAGER CANOPEN FUNCTION

As default, the Programmable Logic Controller PLC201 is programmed to operate as server of the CANopen network. The programming of the equipment as network manager must be done by using the WPSCAN software, which also allows the configuration of the entire CANopen network. The detailed description of the windows and functions of the WPSCAN software is obtained in the “Help” menu of the software itself.

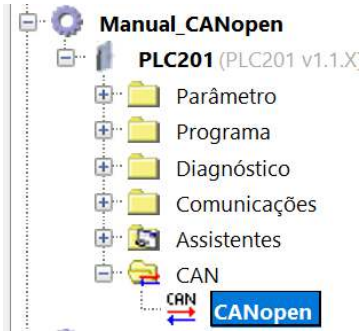


Figure 9.1: *WSCAN access with WPS.*

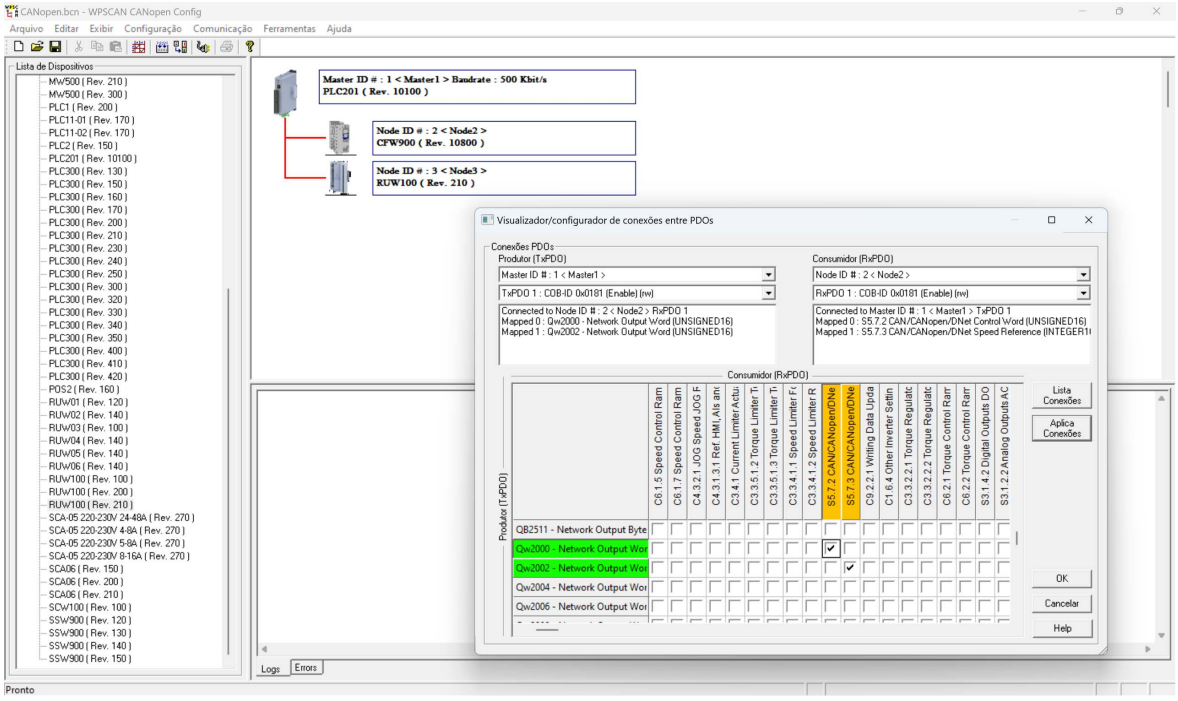


Figure 9.2: *PDOs configuration example with WSCAN.*

A detailed description of the windows and functions of the WSCAN software can be found in the “Help” menu of the software itself.

NOTE!
Its not possible to download the CANopen configuration for PLC201 through WSCAN. The CANopen configuration must be generated with WSCAN and downloaded to PLC201 through WPS with the others files from the internal memory.

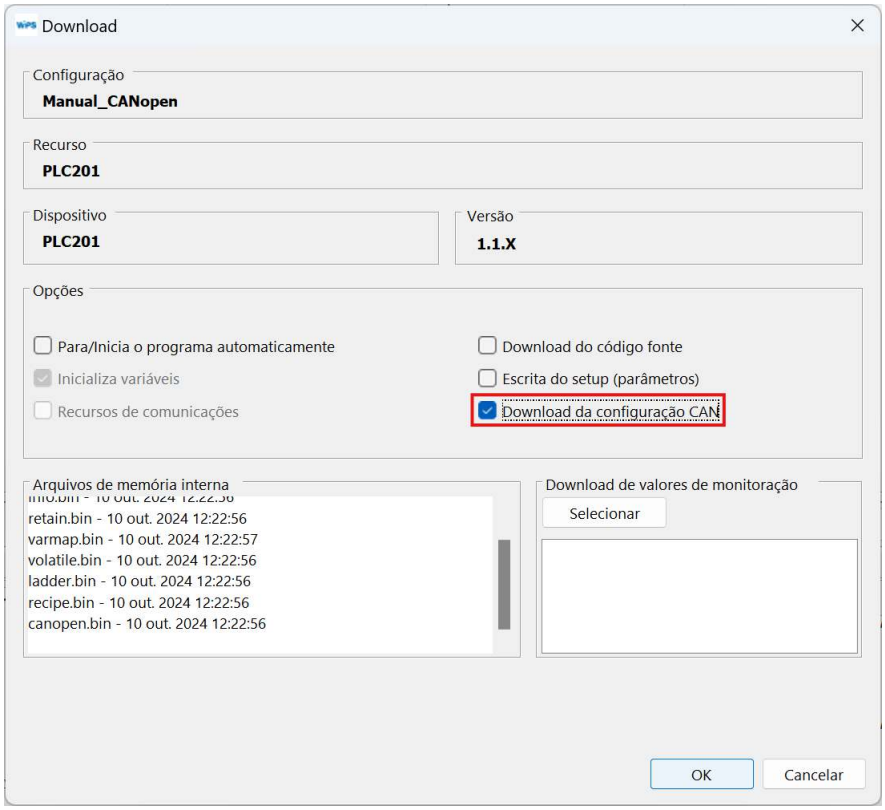


Figure 9.3: *CANopen configuration download to PLC201.*

NOTE!
It is essential to keep the checkbox checked so that the CANopen configuration is downloaded with each download operation. Otherwise, if the checkbox is unchecked, the CANopen file will be deleted.

9.2 MANAGER OPERATION

Once programmed to operate as a manager, the Programmable Logic Controller PLC201 will execute the following steps to initialize, in a sequence, each server:

- 1ª: Send the communication reset command to the entire network, so that the servers initialize with known values for the communication objects.
- 2ª: Identification of the equipment in network, trough the reading via SDO of the object 1000h/00h – Object Identification.
- 3ª: Writing via SDO of all the objects programmed for the server, which usually includes the configuration and mapping of the TPDOs and RPDOs, node guarding, heartbeat, besides the specific objects of the manufacturer, in case they are programmed.
- 4ª: Start the error control task – node guarding or heartbeat – if they are programmed.
- 5ª: Send the server to mode of operation.

If one of these steps fails, the error of communication with server will occur. Depending of the configurations, the server initialization will be aborted, and the manager will initialize the next server, returning to the server with error after trying to initialize all the other network servers.

Similarly, if, during the operation of a server, an error is identified in the error control task, depending on the configurations of the manager, the server will be automatically reset and the initialization procedure will be run again.

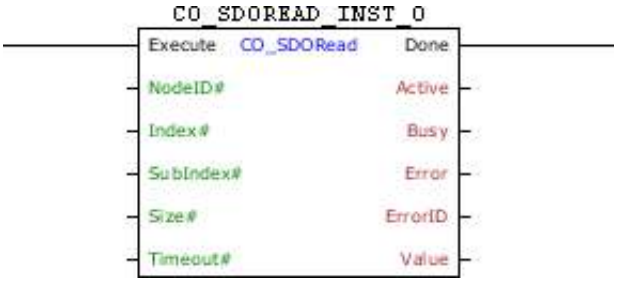
NOTE!
The communication status and the status of each server can be observed in system markers.

9.3 BLOCKS FOR THE CANOPEN MANAGER

In addition to the communication objects and the configurations made on the WSCAN software, blocks for monitoring and sending commands are also available. They can be used during the preparation of the ladder application for the Programmable Logic Controller PLC201. It is not necessary to use these blocks during the equipment operation, but they provides more flexibility and simplify the communication troubleshooting during the operation of the Programmable Logic Controller PLC201.

9.3.1 CANopen SDO Read

Block for data reading via SDO of a remote server. It allows the reading of objects in the network with a size of up to 4 bytes.



t has an ”Execute” block enabling input, and a ”Done” output which is activated after the end of the function’s successful performance. In the ”Execute” positive transition, when the manager’s SDO client is free, a new requisition is sent to the server’s SDO server. At the operation successful end – response received from the server – the ”Done” output is activated, remaining active while the input is active. In case of error in the requisition performance, the ”Error” output is enabled, and the error code is put to ”ErrorID”.

Inputs:

“NodeID#” – VAR_IN: insert a constant.
Types of data: BYTE
Description: Address of destination server – 1 tp 127.

“Index#” – VAR_IN: insert a constant.
Types of data: WORD
Description: Index of object accessed, among the objects available in the server’s dictionary of objects – 0 to 65535.

“SubIndex#” – VAR_IN: insert a constant.
Types of data: BYTE
Description: Sub-index of the accessed object – 0 to 255.

“Size#” – VAR_IN: insert a constant.
Types of data: BYTE
Description: Size of the accessed data in bytes – 1 to 4.

“Timeout#” – VAR_IN: insert a constant.
Types of data: WORD
Description: Waiting time for the arrival of the response by the server, from its sending by the manager – 5 to 5000 ms

Outputs:

”Active” - VAR_OUT: insert a variable (tag).
Types of data: BOOL
Description: Active block, request for reading sent to the server and awaiting response.
Note: The variable must have writing permission.

”Busy” - VAR_OUT: insert a variable (tag).
Types of data: BOOL
Description: Block enabled, though resource is not available (SDO client sending another requisition), waiting for release so that the request is sent by the block. If the enabling input is while the block makes that indication, the requisition is rejected.
Note: The variable must have writing permission.

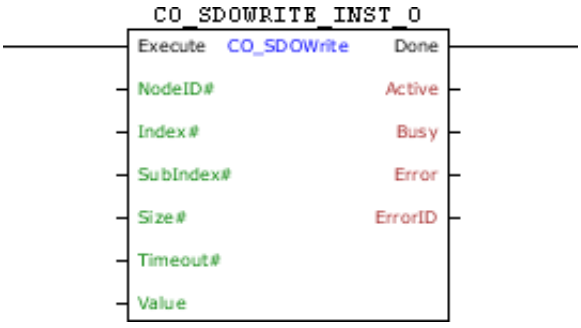
“Error” – VAR_OUT: insert a variable (tag).
Types of data: BOOL
Description: error during requisition performance.
Note: The variable must have writing permission.

“ErrorID” – VAR_OUT: insert a variable (tag).
Tipos de dados: BYTE ou USINT
Description: In case of error during the requisition, it indicates the type of error occurred. Possible results: 0= ”Successfully performed”; 1= ”Card cannot perform the function” (example: Manager disabled); 2= ”Timeout in the response by the server”; 3= ”Server returned error”.
Note: The variable must have writing permission.

“Value” – VAR_OUT: insert a variable (tag).
Types of data BYTE[1 ... 4] or USINT[1 ... 4]
Description: Variable or array where the server’s read data will be saved
Note: The variable must have writing permission.

9.3.2 CANopen SDO Write

Block for data writing via SDO of a remote server. It allows the writing of objects in the network with the size of up to 4 bytes.



It has an ”Execute” block enabling input, and a ”Done” output which is activated after the end of the function’s successful performance. In the ”Execute” positive transition, when the manager’s SDO client is free, a new requisition is sent to the server’s SDO server. At the operation successful end – response received from the server – the ”Done” output is activated, remaining active while the input is active. In case of error in the requisition performance, the ”Error” output is enabled, and the error code is put to ”ErrorID”.

Input:

“NodeID#” – VAR_IN: insert a constant.

Types of data BYTE
Description: Address of destination server - 1 to 127

“Index#” – VAR_IN: insert a constant.
Types of data: WORD
Description: Index of the accessed object, among the objects available in the server’s dictionary of objects – 0 a 65535.

“SubIndex#” – VAR_IN: insert a constant.
Types of data: WORD
Description: Sub-index of the accessed object - 0 to 255.

“Size#” – VAR_IN: insert a constant.
Types of data: BYTE
Description: Size of the accessed data in bytes – 1 to 4.

“Timeout#” – VAR_IN: insert a constant.
Types of data: WORD
Description: Waiting time for the arrival of the response by the server, from the sending by the manager – 5 to 5000 ms.

“Value” – VAR_IN: insert a variable (tag).
Types of data: BYTE[1 ... 4] or USINT[1 ... 4]
Description: Variable or array with data to send to the server.

Outputs:

”Active” - VAR_OUT: insert a variable (tag).
Types of data: BYTE[1 ... 4] or USINT[1 ... 4]
Description: Variable or array with data to send to the server.

”Busy” - VAR_OUT: insert a variable (tag).
Types of data: BOOL
Description: Block enabled, though resource is not available (SDO client sending another requisition), waiting for release so that the request is sent by the block. If the enabling input is removed while the block makes that indication, the requisition is rejected.
Note: The variable must have writing permission.

”Error” - VAR_OUT: insert a variable (tag).
Types of data: BOOL
Description: Error during requisition performance.
Note: The variable must have writing permission.

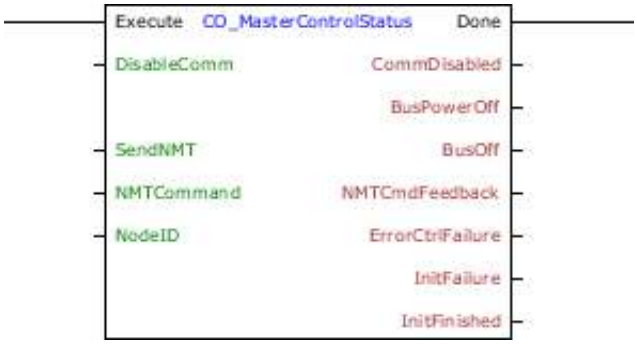
”ErrorID” - VAR_OUT: insert a variable (tag).
Types of data: BYTE or USINT.
Description: In case of requisition error, the type of error occurred will be indicated. Possible results: 0= ”Successfully performed”; 1= ”Card cannot perform the function” (example: Manager disabled); 2= ”Timeout in the response by the server”; 3= ”Server returned error”.
Note: The variable must have writing permission.

NOTE!

- It is important that the quantity of read or written data programmed in the blocks is compatible with the size of the variable, or the array with the value.
- In case of error returned by the server, it is possible to obtain the code of the last error received through the reading system markers.

9.3.3 CANopen Manager Control/Status

Block to control and monitor the manager in the CANopen network. It shows the state of the network manager for diagnosis and identification of communication problems, as well as allows the sending of commands to the network management task – NMT.



It has an ”Execute” block enabling input, and a ”Done” output which is activated after the end of the function performance. If the ”Execute” input is active, it updates the values of inputs and outputs and enables the ”Done” output. If the ”Execute” input is not active, the other input values are ignored and all outputs are zeroed.

Input:

“DisableComm” – VAR_IN: insert a constant or a variable (tag).
Types of data: BOOL
Description: Disables the CANopen communication. When disabling the manager, the CANopen manager’s status counters and markers are also zeroed - 0 or 1.

”SendNMT” - VAR_IN: insert a constant or a variable (tag).
Types of data: BOOL
Description: During the transition of this signal, the CANopen manager triggers the sending of a management command - NMT - according to the command and the address programmed in this block - 0 or 1.

”NMTCommand” - VAR_IN: insert a constant or a variable (tag).
Types of data: BYTE
Description: It indicates which command must be sent to the server: 1= ”Start node”; 2= ”Stop node”; 128= ”Enter pre-operational”; 129= ”Reset node”; 130= ”Reset communication”.

”NodeID” - VAR_IN: insert a constant or a variable (tag).
Types of data: BYTE or USINT.
Description: Server’s address for the sending of the NMT command - 0= Broadcast (message to all servers); 1 to 127= Server’s specific address.

”CommDisabled” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager and the communication in the CAN interface were disabled. It is indicated whenever the user command to disable the interface is received, but it is also indicated in those situations of lack of power supply in the CAN interface or bus off: 0= ”Communication Enabled”; 1= ”Communication Disabled”.
Note: The variable must have writing permission.

”BusPowerOff” - VAR_OUT: insert a variable (tag).
Types of data: BOOL.
Description: It indicates that failure in the CAN interface power supply was detected: 0= ”Interface CAN supplied”; 1= ”Interface CAN without power supply”.

Note: The variable must have writing permission.

”BusOff” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that bus off error was detected in the CAN interface: 0= ”Without bus off error”; 1= ”With bus off error”.
Note: The variable must have writing permission.

”NMTCmdFeedback” - VAR_OUT: insert a variable (tag).
Types of data: BOOL.
Description: It indicates that the management command was sent by the manager: 0= ”Without command or command not sent”; 1= ”NMT command sent”.
Note: The variable must have writing permission.

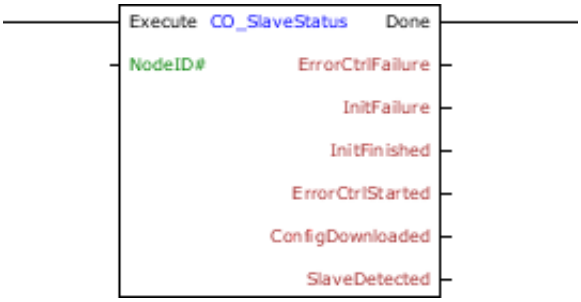
”ErrorCtrlFailure” - VAR_OUT: insert a variable (tag).
Types of data: BOOL.
Description: It indicates that the management command was sent by the manager: 0= ”Without command or command not sent”; 1= ”NMT command sent”.
Note: The variable must have writing permission.

”InitFailure” - VAR_OUT: insert a variable (tag).
Types of data: BOOL.
Description: It indicates that the manager has detected error during the initialization of at least one server in the network: 0= ”Without detected error”; 1= ”Manager detected error in the initialization in at least one server in the network”.
Note: The variable must have writing permission.

”InitFinished” - VAR_OUT: insert a variable (tag).
Types of data: BOOL.
Description: It indicates that the manager has tried to initialize all servers in the network. The initialization was not necessarily performed successfully; there might have been errors during initialization: 0= ”Manager has not yet performed the initialization procedure of all servers”; 1= ”Manager carried out the initialization (successfully or unsuccessfully) of all servers”.
Note: The variable must have writing permission.

9.3.4 CANopen Server Status

Block to monitor the server of the CANopen network. It shows the state of a server in the network for diagnosis and identification of communication problems.



It has an ”Execute” block enabling input, and a ”Done” output which is activated after the end of the function’s successful performance. If the ”Execute” input is active, it updates the values of inputs and outputs and enables the ”Done” output. If the ”Execute” input is not active, the other input values are ignored and all outputs are cleared.

Inputs:

“NodeID” – VAR_IN: insert a constant or a variable (tag).
Types of data BYTE or USINT.
Description: Endereço do servidor para identificação do estado da comunicação com o gerenciador – 1 a 127.

Outputs:

“ErrorCtrlFailure” – VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager has detected error in the error control task (node guarding or heartbeat) in the indicated server: 0= ”Without detected error”; 1= ”Manager detected error in the node guarding or heartbeat in the server”.
Note: The variable must have writing permission.

”InitFailure” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager has detected error during the initialization of the indicated server: 0= ”Without detected error”; 1= ”Manager detected error in the server initialization”.
Note: The variable must have writing permission.

”InitFinished” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager performed the complete and successful initialization of the indicated server: 0= ”Mananger did not conclude the server initialization procedure”; 1= ”Manager successfully performed the server initialization”.
Note: The variable must have writing permission.

”ErrorCtrlStarted” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager has started the error control task (node guarding or heartbeat) with the indicated server: If this task is not enabled for the server, this bit will be activated after performing the configuration: 0= ”Error control with the server not started”; 1= ”Error control with the server started”.
Note: The variable must have writing permission.

”ConfigDownloaded” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager successfully finished downloading the configurations via SDO to the indicated server: 0= ”Manager did not finish downloading the configurations to the server”; 1= ”Download of configurations to the server successfully finished”.
Note: The variable must have writing permission.

”SlaveDetected” - VAR_OUT: insert a variable (tag).
Types of data BOOL.
Description: It indicates that the manager was able to read the identification via the indicated server SDO: 0= ”Server has not been contacted”; 1= ”Server successfully contacted”.
Note: The variable must have writing permission.

NOTE!
The data accessed through the use of this block is also available through reading and writing system markers, as described in Item 9.4 SYSTEM MARKERS on page 9-8.

9.4 SYSTEM MARKERS

For control and monitoring the CAN interface, reading system markers (%S) and writing system markers (%C) were provided. The WPS (WEG Programming Suite) software has the complete list of markers available for the PLC201 with their respective addresses.

9.4.1 Reading

State of CANopen Manager and Servers: group of reading markers to indicate information about the general state of the CANopen manager and the communication state between the manager and each server.

Marker	Description
%SW1720	CANopen manager state: Bit 0: all servers have been contacted. Bit 1: download of servers configuration done. Bit 2: error control mechanism for servers initiated. Bit 3: servers initialization finished. Bit 4: error detected during initialization of at least one server. Bit 5: error detected ate error control mechanism of at least one server. Bits 6 e 7: reserved. Bit 8: assumes the value of the toogle bit (see %CD0016) after the manager sending a NMT command. Bits 9 ... 12: reserved. Bit 13: bus off. Bit 14: no bus power supply. Bit 15: communication disabled.
%SW1722 a %SW1974	CANopen servers state. There are 127 markers, each marker is associated with an address in the CANopen network, and indicates the status of the server at address: Bit 0: server successful contacted. Bit 1: server configuration downloaded successfully. Bit 2: error control initiated. Bit 3: server initialization finished. Bit 4: error during server initialization. Bit 5: error control mechanism detected communication failure. Bits 6 ... 15: reserved

NOTE!
To read the states of CANopen servers, use the system marker **CO_STS_SLAVE_CONFIG** in WPS. This marker represents an array indexed from position 0, where position 0 corresponds to the server with address 1, position 1 to the server with address 2, and so on. **Example:** To access the server with *Node ID* 2, use position 1 of the system marker **CO_STS_SLAVE_CONFIG**.

Last Error at SDO Client: group of reading markers to report data errors detected by the SDO client. If SDO client makes any request and the server does not respond, or respond with an error, the data for the last error detected by the SDO client are saved in these markers.

Marker	Description
%SW1976	Server address destination for which the SDO request was sent.
%SW1978	Index of accessed object via SDO.
%SW1980	Sub-index of accessed object.
%SW1982	Type of access: 1 = read, 2 = write.
%SW1984	For writing access, indicates the written value.
%SW1988	Indicates the received error code, according to communication errors via SDO of the CANopen protocol specification.

9.4.2 Writing

CANopen Manager Control: group of writing markers to control the CANopen manager.

Marker	Description
%CD0016	Command to control the CANopen manager and to send NMT telegram. Bits 0 ... 7: destination server address for sending NMT command. Bits 8 ... 15: reserved Bits 16 ... 23: NMT command code: 1 = START 2 = STOP 128 = ENTER PRE-OPERATIONAL 129 = RESET NODE 130 = RESET COMMUNICATION Bit 24: toggle bit, manager sends the programmed command whenever the value of this bit changes. Bits 25 ... 30: reserved. Bit 31: disables the CANopen communication.

10 QUICK REFERENCE OF ALARMS AND FAULTS

Fault/Alarm	Description	Possible Causes
F134: Bus Off	The bus off error in the CAN interface has been detected. If the number of reception or transmission errors detected by the CAN interface is too high, the CAN controller can be taken to the bus off state, where it interrupts the communication and disables the CAN interface. In order that the communication be reestablished, it will be necessary to cycle the power of the product. In this case, it will be signaled through the red ERROR. Communication is reestablished automatically if the 225Ah object has a value of 1. If the value of the 225Ah object is 0, it will be necessary to turn the PLC off and on to reestablish communication.	- Verify if there is any short-circuit between the CAN circuit transmission cables. - Verify if the cables have not been changed or inverted. - Verify if all the network devices use the same baud rate. - Verify if termination resistors with the correct values were installed only at the extremes of the main bus. - Verify if the CAN network installation was carried out in proper manner.
F135: CANopen Offline	It occurs when CANopen node state changes from operational to pre-operational. In this case, it will be signaled by the red ERROR LED. The error is automatically cleared when one of the guarding mechanisms is reestablished.	- Verify the error control mechanisms operation (Heartbeat/Node Guarding). - Verify if the manager is sending the guarding/heartbeat telegrams in the programmed time. - Verify communication problems that can cause telegram losses or transmission delays.

APPENDIX A QUICK REFERENCES

Table A.2: *Parameters quick reference*

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Product - Status									
Product - Status - Firmware Version/Revision/Model									
P0401	Product Model	0 = PLC200 1 = PLC201 2 = RUW200 3 = RUW201 4 = Versión inválida	-	ro, enum	0	401	2191h	0	0
P0402	Models (Slots) - 1 ... 8	5 = MOD3.00 - 8 AOVI 6 = MOD3.10 - 8 AOV 7 = MOD7.00 - 6RE 16 = MOD1.00 - 24DI 17 = MOD1.10 - 24DO 18 = MOD1.30 - 08DO/16DI 19 = MOD1.20 - 16DO/08DI 128 = MOD2.00 - 7 AI 129 = MOD4.00 - 7 TH 130 = MOD5.00 - 4 RTD 131 = MOD6.00 - 2 SG 239 = MOD8.00 - SCW 255 = Not Connected	-	ro, enum	0	402	2192h	0 ... 8	0
P0500	Firmware Version of the Product.	0.0 to 99.9999	-	ro, 32bit	4	500	21F4h	0	0
P0502	Firmware Version (Slots) - 1 ... 8	0.0 to 19.99	-	ro, 16bit	2	502	21F6h	0 ... 8	0
P0540	Bootloader Version	20.0 to 60.0	-	ro, 32bit	4	540	221Ch	0	0
P0560	Product Serial Number	0 to 4294967295	-	ro, 32bit	0	560	2230h	0	0
P0400	Number of Slots	0 to 255	-	ro, 8bit	0	400	2190h	0	0
Product - Status - Communication									
Product - Status - Communication - Ethernet									
P0846	ETH - Actual IP Address	0:0:0:0 to 255:255:255:255	0:0:0:0	ro, ip addr	0	846	234Eh	0	0
P0889	ETH - Interface Status	Bit 0 = Link 1 Bit 1 = Link 2 Bit 2 ... 7 = Reserved	-	ro, 16bit	0	889	2379h	0	0
P0891	ETH - MAC Address	00:00:00:00:00:00 to FF:FF:FF:FF:FF:FF	-	ro, mac addr	0	891	237Bh	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Product - Status - Communication - EtherNet/IP									
P0869	EIP - Scanner Status	0 = Run 1 = Idle	-	ro, enum	0	869	2365h	0	0
P0870	EIP - Communication Status	0 = Inactive 1 = No connection 2 = Connected 3 = Timeout in I/O connection 4 = Duplicate IP	-	ro, enum	0	870	2366h	0	0
Product - Status - Communication - Modbus TCP									
P0097	Modbus TCP Program Status	0 = Modbus TCP Client Enabled 1 = Modbus TCP Client Disabled	-	ro, enum	0	97	2061h	0	0
P0860	MBTCP - Communication Status	0 = Inactive 1 = No connection 2 = Connected 3 = Timeout Error	-	ro, enum	0	860	235Ch	0	0
P0861	MBTCP - Received Telegrams	0 to 65535	-	ro, 16bit	0	861	235Dh	0	0
P0862	MBTCP - Transmitted Telegrams	0 to 65535	-	ro, 16bit	0	862	235Eh	0	0
P0863	MBTCP - Active Connections	0 to 4	-	ro, 8bit	0	863	235Fh	0	0
Product - Status - Communication - MQTT									
P0841	MQTT - Status	0 = Inactive 1 = No Connection 2 = Connected (Pub) 3 = Connected (Pub/Sub) 4 = Connection fail	-	ro, enum	0	841	2349h	0	0
P0842	Last Public. MQTT	0 to 4294967295	-	ro, date and time epoch	0	842	234Ah	0	0
Product - Status - Communication - SNTP									
P0778	SNTP - Status	0 = Inactive 1 = No Connection	-	ro, enum	0	778	230Ah	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = Connected							
P0780	SNTP - Last Update	0 to 4294967295	-	ro, date and time epoch	0	780	230Ch	0	0
Product - Status - Communication - CAN									
P0605	CAN - Controller Status	0 = Inactive 1 = Auto-baud 2 = CAN Active 3 = Warning 4 = Passive Error 5 = Bus Off	-	ro, enum	0	605	225Dh	0	0
P0606	CAN - CAN RX Telegrams	0 to 65535	-	ro, 16bit	0	606	225Eh	0	0
P0607	CAN - CAN TX Telegrams	0 to 65535	-	ro, 16bit	0	607	225Fh	0	0
P0608	CAN - Bus Off Counter	0 to 65535	-	ro, 16bit	0	608	2260h	0	0
P0609	CAN - Lost Telegrams	0 to 65535	-	ro, 16bit	0	609	2261h	0	0
P0610	CAN - CANopen Communication Status	0 = Inactive 1 = Not used 2 = Comm. Enabled 3 = Error Ctrl. Enab. 4 = Guarding Error 5 = Heartbeat Error	-	ro, enum	0	610	2262h	0	0
P0611	CAN - CANopen Node Status	0 = Inactive 1 = Initialization 2 = Stopped 3 = Operational 4 = PreOperational	-	ro, enum	0	611	2263h	0	0
Product - Status - Inputs									
P0900	Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07	-	ro, 32bit	0	900	2384h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 7 = DI08							
P0950	Counter Value - 1 ... 4	-2147483648 to 2147483647	-	ro, s32bit	0	950	23B6h	0 ... 4	1
P0970	Counter Direction - 1 ... 4	0 = Count up 1 = Countdown	-	ro, enum	0	970	23CAh	0 ... 4	1
Product - Status - Errors and Faults									
P0100	Last 5 faults - 1 ... 5	0 = NO ERROR 1 = RS485 TIMEOUT 2 ... 3 = RESERVED 4 = CAN BUS OFF 5 = RESERVED 6 = CAN INITIALIZATION ERROR 7 = CAN ENABLE ERROR 8 = CANOPEN NODE GUARD ERROR 9 = CANOPEN HEARTBEAT ERROR 10 = HW WATCHDOG 11 ... 13 = INTERNAL ERROR 14 = RETENTIVE MEMORY 15 = FLASH MEMORY 50% 16 = FLASH MEMORY 100% 17 = NUMBER OF ACCESSORIES EXCEEDED 18 = INTRABUS ADDRESSING ERROR 19 = INTRABUS IDENTIFICATION ERROR 20 = INTERNAL ERROR 21 = SLOT 1 IDENTIFICATION ERROR 22 = SLOT 2 IDENTIFICATION ERROR 23 = SLOT 3 IDENTIFICATION ERROR 24 = SLOT 4 IDENTIFICATION ERROR 25 = SLOT 5 IDENTIFICATION ERROR	-	ro, enum	0	100	2064h	0 ... 5	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		26 = SLOT 6 IDENTIFICATION ERROR 27 = SLOT 7 IDENTIFICATION ERROR 28 = SLOT 8 IDENTIFICATION ERROR 29 ... 30 = INTERNAL ERROR 31 = SLOT 1 INTRABUS TIMEOUT 32 = SLOT 2 INTRABUS TIMEOUT 33 = SLOT 3 INTRABUS TIMEOUT 34 = SLOT 4 INTRABUS TIMEOUT 35 = SLOT 5 INTRABUS TIMEOUT 36 = SLOT 6 INTRABUS TIMEOUT 37 = SLOT 7 INTRABUS TIMEOUT 38 = SLOT 8 INTRABUS TIMEOUT 39 ... 40 = INTERNAL ERROR 41 = SLOT 1 INTRABUS CRC ERROR 42 = SLOT 2 INTRABUS CRC ERROR 43 = SLOT 3 INTRABUS CRC ERROR 44 = SLOT 4 INTRABUS CRC ERROR 45 = SLOT 5 INTRABUS CRC ERROR 46 = SLOT 6 INTRABUS CRC ERROR 47 = SLOT 7 INTRABUS CRC ERROR 48 = SLOT 8 INTRABUS CRC ERROR 49 ... 50 = INTERNAL ERROR 51 = SLOT 1 INTRABUS COMMAND ERROR							

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		52 = SLOT 2 INTRABUS COMMAND ERROR 53 = SLOT 3 INTRABUS COMMAND ERROR 54 = SLOT 4 INTRABUS COMMAND ERROR 55 = SLOT 5 INTRABUS COMMAND ERROR 56 = SLOT 6 INTRABUS COMMAND ERROR 57 = SLOT 7 INTRABUS COMMAND ERROR 58 = SLOT 8 INTRABUS COMMAND ERROR 59 ... 70 = INTERNAL ERROR 71 = EXTERNAL FLASH 72 = TIMEOUT MBTCP 73 = TIMEOUT SNTP 74 = LOW BATTERY 75 = SCANNER IN IDLE 76 = ETHERNET IP OFFLINE 77 = PROGRAM WATCHDOG							
P0105	Last 5 Alarms - 1 ... 5	0 = NO ERROR 1 = RS485 TIMEOUT 2 ... 3 = RESERVED 4 = CAN BUS OFF 5 = RESERVED 6 = CAN INITIALIZATION ERROR 7 = CAN ENABLE ERROR 8 = CANOPEN NODE GUARD ERROR 9 = CANOPEN HEARTBEAT ERROR 10 = HW WATCHDOG 11 ... 13 = INTERNAL ERROR 14 = RETENTIVE MEMORY 15 = FLASH MEMORY 50% 16 = FLASH MEMORY 100% 17 = NUMBER OF ACCESSORIES EXCEEDED	-	ro, enum	0	105	2069h	0 ... 5	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		18 = INTRABUS ADDRESSING ERROR 19 = INTRABUS IDENTIFICATION ERROR 20 = INTERNAL ERROR 21 = SLOT 1 IDENTIFICATION ERROR 22 = SLOT 2 IDENTIFICATION ERROR 23 = SLOT 3 IDENTIFICATION ERROR 24 = SLOT 4 IDENTIFICATION ERROR 25 = SLOT 5 IDENTIFICATION ERROR 26 = SLOT 6 IDENTIFICATION ERROR 27 = SLOT 7 IDENTIFICATION ERROR 28 = SLOT 8 IDENTIFICATION ERROR 29 ... 30 = INTERNAL ERROR 31 = SLOT 1 INTRABUS TIMEOUT 32 = SLOT 2 INTRABUS TIMEOUT 33 = SLOT 3 INTRABUS TIMEOUT 34 = SLOT 4 INTRABUS TIMEOUT 35 = SLOT 5 INTRABUS TIMEOUT 36 = SLOT 6 INTRABUS TIMEOUT 37 = SLOT 7 INTRABUS TIMEOUT 38 = SLOT 8 INTRABUS TIMEOUT 39 ... 40 = INTERNAL ERROR 41 = SLOT 1 INTRABUS CRC ERROR 42 = SLOT 2 INTRABUS CRC ERROR							

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		43 = SLOT 3 INTRABUS CRC ERROR 44 = SLOT 4 INTRABUS CRC ERROR 45 = SLOT 5 INTRABUS CRC ERROR 46 = SLOT 6 INTRABUS CRC ERROR 47 = SLOT 7 INTRABUS CRC ERROR 48 = SLOT 8 INTRABUS CRC ERROR 49 ... 50 = INTERNAL ERROR 51 = SLOT 1 INTRABUS COMMAND ERROR 52 = SLOT 2 INTRABUS COMMAND ERROR 53 = SLOT 3 INTRABUS COMMAND ERROR 54 = SLOT 4 INTRABUS COMMAND ERROR 55 = SLOT 5 INTRABUS COMMAND ERROR 56 = SLOT 6 INTRABUS COMMAND ERROR 57 = SLOT 7 INTRABUS COMMAND ERROR 58 = SLOT 8 INTRABUS COMMAND ERROR 59 ... 70 = INTERNAL ERROR 71 = EXTERNAL FLASH 72 = TIMEOUT MBTCP 73 = TIMEOUT SNTP 74 = LOW BATTERY 75 = SCANNER IN IDLE 76 = ETHERNET IP OFFLINE 77 = PROGRAM WATCHDOG							
Product - Status - Program									
P0099	Program Status	0 = Stopped 1 = Running 2 = No program	-	ro, enum	0	99	2063h	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		3 = Invalid 4 = Installing							
Product - Status - Program - Counter/Scan Cycle									
P0700	Counter 100us	0 to 4294967295	-	ro, 32bit	0	700	22BCh	0	1
P0702	Scan Cycle	0.0 to 6553.5 ms	-	ro, 16bit	1	702	22BEh	0	1
P0703	Minimum Scan Cycle	0.0 to 6553.5 ms	-	ro, 16bit	1	703	22BFh	0	0
P0704	Maximum Scan Cycle	0.0 to 6553.5 ms	-	ro, 16bit	1	704	22C0h	0	0
Product - Status - Watchdog									
P0050	System watchdog: Code	0 to 65535	-	ro, 32bit	0	50	2032h	0	0
P0052	Watchdog - Data - 1 ... 17	0 to 4294967295	-	ro, 32bit	0	52	2034h	0 ... 17	0
P0086	Watchdog - Date/Time	0 to 4294967295	-	ro, date and time epoch	0	86	2056h	0	0
Product - Status - Date and time									
P0192	Date/Hour	0 to 4294967295	-	ro, date and time epoch	0	192	20C0h	0	0
Product - Configuration									
Product - Configuration - Communication									
Product - Configuration - Communication - Communication Errors									
P0624	Action for Communication Error	0 = Alarm 1 = Fault	0	rw, enum	0	624	2270h	0	0
Product - Configuration - Communication - I/O Data									
P0873	Readings Quantity	1 to 50	2	rw, 8bit	0	873	2369h	0	0
P15000	Read Word - 1 ... 50	0 to 65535	0	rw, 16bit	0	15000	5A98h	0 ... 50	0
P0875	Writings Quantity	1 to 50	2	rw, 8bit	0	875	236Bh	0	0
P15250	Write Word - 1 ... 50	0 to 65535	0	rw, 16bit	0	15250	5B92h	0 ... 50	0
P0618	Termination resistor	0 = Not connected 1 = Connected	0	rw, enum	0	618	226Ah	0	0
P0624	Action for Communication Error	0 = Alarm 1 = Fault	0	rw, enum	0	624	2270h	0	0
Product - Configuration - Communication - Ethernet									
P0798	ETH - Enable protocols	Bit 0 = Web Server	0	rw, 16bit	0	798	231Eh	0	0
P0850	ETH - IP Address Settings		0	rw, enum	0	850	2352h	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		0 = Static IP 1 = DHCP							
P0852	ETH - IP Address	0:0:0:0 to 255:255:255:255	192:168:1:10	rw, ip addr	0	852	2354h	0	0
P0855	ETH - Network Mask	0 = Not used 1 = 128.0.0.0 2 = 192.0.0.0 3 = 224.0.0.0 4 = 240.0.0.0 5 = 248.0.0.0 6 = 252.0.0.0 7 = 254.0.0.0 8 = 255.0.0.0 9 = 255.128.0.0 10 = 255.192.0.0 11 = 255.224.0.0 12 = 255.240.0.0 13 = 255.248.0.0 14 = 255.252.0.0 15 = 255.254.0.0 16 = 255.255.0.0 17 = 255.255.128.0 18 = 255.255.192.0 19 = 255.255.224.0 20 = 255.255.240.0 21 = 255.255.248.0 22 = 255.255.252.0 23 = 255.255.254.0 24 = 255.255.255.0 25 = 255.255.255.128 26 = 255.255.255.192 27 = 255.255.255.224 28 = 255.255.255.240 29 = 255.255.255.248 30 = 255.255.255.252 31 = 255.255.255.254	24	rw, enum	0	855	2357h	0	0
P0856	ETH - Gateway	0:0:0:0 to 255:255:255:255	0:0:0:0	rw, ip addr	0	856	2358h	0	0
P0890	ETH - Interface Control	Bit 0 = Auto Negotiate Link	9	rw, 16bit	0	890	237Ah	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 1 = Speed Link Bit 2 = Forced Duplex Link							
Product - Configuration - Communication - EtherNet/IP									
P0871	EIP - I/O instances	0 ... 9 = Not used 10 = 102/152 Config I/O data	10	rw, enum	0	871	2367h	0	0
Product - Configuration - Communication - Modbus TCP									
P0096	Modbus TCP Program Command	0 = Enable Modbus TCP Client 1 = Disabls Modbus TCP Client	0	rw, enum	0	96	2060h	0	0
P0864	MBTCP - Connection Timeout	0 to 65535 s	65 s	rw, 16bit	0	864	2360h	0	0
P0865	MBTCP - TCP Port	0 to 65535	502	rw, 16bit	0	865	2361h	0	0
P0868	MBTCP - Timeout	0.0 to 999.0 s	0.0 s	rw, 16bit	1	868	2364h	0	0
Product - Configuration - Communication - MQTT									
P0844	MQTT - Enable/Disable	0 = Disable 1 = Enable 2 = Enable only publish	1	rw, enum	0	844	234Ch	0	0
Product - Configuration - Communication - SNTP									
P0770	SNTP - Server 1	0:0:0:0 to 255:255:255:255	0:0:0:0	rw, ip addr	0	770	2302h	0	0
P0774	SNTP - Server 2	0:0:0:0 to 255:255:255:255	0:0:0:0	rw, ip addr	0	774	2306h	0	0
P0779	SNTP - Update Interval	0 to 65535	0	rw, 16bit	0	779	230Bh	0	0
Product - Configuration - Communication - CAN									
P0600	CAN - Address	1 to 127	2	rw, 16bit	0	600	2258h	0	0
P0601	CAN - Baud Rate	0 = 1 Mbit/s 1 = 800 Kbit/s 2 = 500 Kbit/s 3 = 250 Kbit/s 4 = 125 Kbit/s 5 = 100 Kbit/s 6 = 50 Kbit/s 7 = 20 Kbit/s	0	rw, enum	0	601	2259h	0	0
P0602	CAN - Bus Off Reset	0 = Manual 1 = Automatic	0	rw, enum	0	602	225Ah	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P0618	Termination resistor	0 = Not connected 1 = Connected	0	rw, enum	0	618	226Ah	0	0
P0624	Action for Communication Error	0 = Alarm 1 = Fault	0	rw, enum	0	624	2270h	0	0
Product - Configuration - Inputs / Outputs									
P0902	Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04	0	rw, 32bit	0	902	2386h	0	1
P0904	Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	904	2388h	0	0
P0906	Digital Outputs Error Value	0 to 4294967295	0	rw, 32bit	0	906	238Ah	0	0
P0908	Update I/Os in stop	Bit 0 = Select	0	rw, 16bit	0	908	238Ch	0	0
P0909	Output behavior in stop	0 = Force outputs to the default value 1 = Keep the actual values	0	rw, enum	0	909	238Dh	0	0
P0918	Enable step-motor control	Bit 0 = Step-motor 1 Bit 1 = Step-motor 2	0	rw, 16bit	0	918	2396h	0	0
P0919	Step-motor - Reverses direction	Bit 0 = Step-motor 1 Bit 1 = Step-motor 2	0	rw, 16bit	0	919	2397h	0	0
P0940	Counter 1 / DI1 - DI2	0 = Digital Inputs 1 = Quadrature 2 = Pulse and Direction 3 = Counter and digital input	0	rw, enum	0	940	23ACh	0	0
P0941	Counter 2 / DI3 - DI4	0 = Digital Inputs	0	rw, enum	0	941	23ADh	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Quadrature 2 = Pulse and Direction 3 = Counter and digital input							
P0942	Counter 3 / DI5 - DI6	0 = Digital Inputs 1 = Quadrature 2 = Pulse and Direction 3 = Counter and digital input	0	rw, enum	0	942	23AEh	0	0
P0943	Counter 4 / DI7 - DI8	0 = Digital Inputs 1 = Quadrature 2 = Pulse and Direction 3 = Counter and digital input	0	rw, enum	0	943	23AFh	0	0
P0948	Counter - Reverse direction	Bit 0 = Counter 1 Bit 1 = Counter 2 Bit 2 = Counter 3 Bit 3 = Counter 4	0	rw, 16bit	0	948	23B4h	0	0
P0979	Resets Counter	Bit 0 = Counter 1 Bit 1 = Counter 2 Bit 2 = Counter 3 Bit 3 = Counter 4	0	rw, 16bit	0	979	23D3h	0	0
Product - Configuration - Flash									
P0204	Load parameters	0 = External Flash Memory 1 = Save Parameters to Flash 2 = It loads Parameters from Flash 3 = Restart product 4 = It loads Factory Settings 5 = It Resets the Expansions	0	rw, enum	0	204	20CCh	0	0
Product - Configuration - Clear Errors									
P0200	Clear Errors	0 to 255	0	rw, 8bit	0	200	20C8h	0	0
Product - Configuration - Date and time									
P0194	Set Date/Time	0 to 4294967295	1704070861	rw, date and time epoch	0	194	20C2h	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P0196	Time Zone	0 = UTC-12:00 1 = UTC-11:30 2 = UTC-11:00 3 = UTC-10:30 4 = UTC-10:00 5 = UTC-09:30 6 = UTC-09:00 7 = UTC-08:30 8 = UTC-08:00 9 = UTC-07:30 10 = UTC-07:00 11 = UTC-06:30 12 = UTC-06:00 13 = UTC-05:30 14 = UTC-05:00 15 = UTC-04:30 16 = UTC-04:00 17 = UTC-03:30 18 = UTC-03:00 19 = UTC-02:30 20 = UTC-02:00 21 = UTC-01:30 22 = UTC-01:00 23 = UTC-00:30 24 = UTC+00:00 25 = UTC+00:30 26 = UTC+01:00 27 = UTC+01:30 28 = UTC+02:00 29 = UTC+02:30 30 = UTC+03:00 31 = UTC+03:30 32 = UTC+04:00 33 = UTC+04:30 34 = UTC+05:00 35 = UTC+05:30 36 = UTC+06:00 37 = UTC+06:30 38 = UTC+07:00	24	rw, enum	0	196	20C4h	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		39 = UTC+07:30 40 = UTC+08:00 41 = UTC+08:30 42 = UTC+09:00 43 = UTC+09:30 44 = UTC+10:00 45 = UTC+10:30 46 = UTC+11:00 47 = UTC+11:30 48 = UTC+12:00 49 = UTC+12:30 50 = UTC+13:00 51 = UTC+13:30 52 = UTC+14:00						
P0190	Disable RTC	Bit 0 = Select	0	rw, 16bit	0	190	20BEh	0	0
Product - User									
P0800	User Parameter - 1 ... 20	-2147483648 to 2147483647	0	rw, s32bit	0	800	2320h	0 ... 20	1
Slot 1 - Digital Input/Output									
Slot 1 - Digital Input/Output - Digital Outputs (DOs)									
P1102	Slot 1 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18	0	rw, 32bit	0	1102	244Eh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 1 - Digital Input/Output - Digital Inputs (DIs)									
P1100	Slot 1 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1100	244Ch	0	1
Slot 1 - Digital Input/Output - Configuration									
P1104	Slot 1 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1104	2450h	0	0
P1106	Slot 1 - Error Value	0 to 4294967295	0	rw, 32bit	0	1106	2452h	0	0
Slot 1 - Analog Input (AI, TH, RTD)									
Slot 1 - Analog Input (AI, TH, RTD) - Configuration									
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P3135	Slot 1 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3135	2C3Fh	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3142	Slot 1 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3142	2C46h	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3149	Slot 1 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3149	2C4Dh	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3156	Slot 1 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3156	2C54h	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									
P3163	Slot 1 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3163	2C5Bh	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3170	Slot 1 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3170	2C62h	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P3178	Slot 1 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3178	2C6Ah	0 ... 7	0
Slot 1 - Analog Input (AI, TH, RTD) - Status									
Slot 1 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3100	Slot 1 - 16-bit analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3100	2C1Ch	0 ... 7	1
Slot 1 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3107	Slot 1 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3107	2C23h	0 ... 7	1
Slot 1 - Analog Output									
Slot 1 - Analog Output - Configuration									
Slot 1 - Analog Output - Configuration - Error Mode									
P5108	Slot 1 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5108	33F4h	0 ... 8	0
Slot 1 - Analog Output - Configuration - Error Value									
P5116	Slot 1 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5116	33FCh	0 ... 8	0
Slot 1 - Analog Output - Configuration - Channel Gain									
P5132	Slot 1 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5132	340Ch	0 ... 8	0
Slot 1 - Analog Output - Configuration - Channel Offset									
P5140	Slot 1 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5140	3414h	0 ... 8	0
Slot 1 - Analog Output - 16-Bit Analog Output Value									
P5100	Slot 1 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5100	33ECh	0 ... 8	1
Slot 1 - Analog input (SG)									
Slot 1 - Analog input (SG) - Configuration									
Slot 1 - Analog input (SG) - Configuration - Channel Enable									
P7118	Slot 1 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7118	3BCEh	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Unit									
P7120	Slot 1 - Analog Channel Unit - 1 ... 2		0	rw, enum	0	7120	3BD0h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		0 = g 1 = kg 2 = t							
Slot 1 - Analog input (SG) - Configuration - Channel filter									
P7122	Slot 1 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7122	3BD2h	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Gain									
P7124	Slot 1 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7124	3BD4h	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Offset									
P7126	Slot 1 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7126	3BD6h	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Full Scale									
P7130	Slot 1 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7130	3BDAh	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Sensitivity									
P7132	Slot 1 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7132	3BDCh	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7134	Slot 1 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)	4	rw, enum	0	7134	3BDEh	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7136	Slot 1 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7136	3BE0h	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7140	Slot 1 - Analog Channel Discard Value - 1 ... 2	0 = Maintain	0	rw, enum	0	7140	3BE4h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Discard							
Slot 1 - Analog input (SG) - Configuration - Filter Time Constant									
P7142	Slot 1 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7142	3BE6h	0 ... 2	0
Slot 1 - Analog input (SG) - Configuration - Channel Variation Step									
P7144	Slot 1 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7144	3BE8h	0 ... 2	0
Slot 1 - Analog input (SG) - Status									
Slot 1 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bits									
P7100	Slot 1 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7100	3BBCh	0 ... 2	1
Slot 1 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bits									
P7102	Slot 1 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7102	3BBEh	0 ... 2	1
Slot 1 - Analog input (SG) - Status - SG Analog Channel Status									
P7106	Slot 1 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7106	3BC2h	0 ... 2	1
Slot 1 - Starter manager (SCW)									
Slot 1 - Starter manager (SCW) - Status									
Slot 1 - Starter manager (SCW) - Status - Product Information									
P1100	Slot 1 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11	-	ro, 32bit	0	1100	244Ch	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
P9102	Slot1 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9102	438Eh	0	1
Slot 1 - Starter manager (SCW) - Status - Starters									
P9110	Slot1 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9110	4396h	0	1
P9111	Slot1 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9111	4397h	0	1
P9112	Slot1 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9112	4398h	0	1
P9113	Slot1 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9113	4399h	0	1
P9114	Slot1 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9114	439Ah	0	1
P9115	Slot1 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9115	439Bh	0	1
P9116	Slot1 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9116	439Ch	0	1
P9117	Slot1 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9117	439Dh	0	1
P9118	Slot1 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9118	439Eh	0	1
P9119	Slot1 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9119	439Fh	0	1
P9120	Slot1 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9120	43A0h	0	1
P9121	Slot1 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9121	43A1h	0	1
P9122	Slot1 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9122	43A2h	0	1
P9123	Slot1 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9123	43A3h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9124	Slot1 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9124	43A4h	0	1
P9125	Slot1 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9125	43A5h	0	1
P9130	Slot1 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9130	43AAh	0	1
P9132	Slot1 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9132	43ACh	0	1
P9134	Slot1 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9134	43AEh	0	1
P9136	Slot1 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9136	43B0h	0	1
P9138	Slot1 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9138	43B2h	0	1
P9140	Slot1 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9140	43B4h	0	1
P9142	Slot1 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9142	43B6h	0	1
P9144	Slot1 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9144	43B8h	0	1
P9160	Slot1 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9160	43C8h	0	1
P9161	Slot1 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9161	43C9h	0	1
P9162	Slot1 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9162	43CAh	0	1
P9163	Slot1 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9163	43CBh	0	1
P9164	Slot1 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9164	43CCh	0	1
P9165	Slot1 - P3 Status - Direction and Errors		-	ro, 16bit	0	9165	43CDh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm							
P9166	Slot1 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9166	43CEh	0	1
P9167	Slot1 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9167	43CFh	0	1
Slot 1 - Starter manager (SCW) - Status - Errors and Alarms									
P9170	Slot1 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9170	43D2h	0	1
P9171	Slot1 - P2 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9171	43D3h	0	1
P9172	Slot1 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9172	43D4h	0	1
P9173	Slot1 - P4 - Last Error	0 = No Error	-	ro, enum	0	9173	43D5h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor							
P9175	Slot1 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9175	43D7h	0	1
P9176	Slot1 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9176	43D8h	0	1
P9177	Slot1 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9177	43D9h	0	1
P9178	Slot1 - P4 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9178	43DAh	0	1
Slot 1 - Starter manager (SCW) - Configurations									
Slot 1 - Starter manager (SCW) - Configurations - Starters									
P9180	Slot1 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9180	43DCh	0	1
P9181	Slot1 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9181	43DDh	0	1
P9182	Slot1 - P3 - Operation Mode	0 = Starter	0	rw, 8bit	0	9182	43DEh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Transparent							
P9183	Slot1 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9183	43DFh	0	1
P9185	Slot1 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9185	43E1h	0	1
P9186	Slot1 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9186	43E2h	0	1
P9187	Slot1 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9187	43E3h	0	1
P9188	Slot1 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9188	43E4h	0	1
P9103	Slot1 - Factory Reset	0 to 65535	0	rw, 16bit	0	9103	438Fh	0	0
Slot 1 - Starter manager (SCW) - Configurations - Counters									
P9150	Slot1 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9150	43BEh	0	1
P9151	Slot1 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9151	43BFh	0	1
P9152	Slot1 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9152	43C0h	0	1
P9153	Slot1 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9153	43C1h	0	1
P9154	Slot1 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9154	43C2h	0	1
P9155	Slot1 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9155	43C3h	0	1
P9156	Slot1 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9156	43C4h	0	1
P9157	Slot1 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9157	43C5h	0	1
P9158	Slot1 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9158	43C6h	0	1
Slot 1 - Starter manager (SCW) - Configurations - Commands									
P9190	Slot1 - Direct Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9190	43E6h	0	1
P9191	Slot1 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9191	43E7h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9192	Slot1 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9192	43E8h	0	1
P1102	Slot 1 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24	0	rw, 32bit	0	1102	244Eh	0	1
Slot 2 - Digital Input/Output									
Slot 2 - Digital Input/Output - Digital Outputs (DOs)									
P1202	Slot 2 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05	0	rw, 32bit	0	1202	24B2h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 2 - Digital Input/Output - Digital Inputs (DIs)									
P1200	Slot 2 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19	-	ro, 32bit	0	1200	24B0h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
Slot 2 - Digital Input/Output - Configuration									
P1204	Slot 2 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1204	24B4h	0	0
P1206	Slot 2 - Error Value	0 to 4294967295	0	rw, 32bit	0	1206	24B6h	0	0
Slot 2 - Analog Input (AI, TH, RTD)									
Slot 2 - Analog Input (AI, TH, RTD) - Configuration									
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3235	Slot 2 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3235	2CA3h	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3242	Slot 2 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3242	2CAAh	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3249	Slot 2 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3249	2CB1h	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3256	Slot 2 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3256	2CB8h	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P3263	Slot 2 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3263	2CBFh	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3270	Slot 2 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3270	2CC6h	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3278	Slot 2 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3278	2CCEh	0 ... 7	0
Slot 2 - Analog Input (AI, TH, RTD) - Status									
Slot 2 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3200	Slot 2 - 16-bit analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3200	2C80h	0 ... 7	1
Slot 2 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3207	Slot 2 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3207	2C87h	0 ... 7	1
Slot 2 - Analog Output									
Slot 2 - Analog Output - Configuration									
Slot 2 - Analog Output - Configuration - Error Mode									
P5208	Slot 2 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5208	3458h	0 ... 8	0
Slot 2 - Analog Output - Configuration - Error Value									
P5216	Slot 2 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5216	3460h	0 ... 8	0
Slot 2 - Analog Output - Configuration - Channel Gain									
P5232	Slot 2 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5232	3470h	0 ... 8	0
Slot 2 - Analog Output - Configuration - Channel Offset									
P5240	Slot 2 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5240	3478h	0 ... 8	0
Slot 2 - Analog Output - 16-Bit Analog Output Value									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P5200	Slot 2 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5200	3450h	0 ... 8	1
Slot 2 - Analog input (SG)									
Slot 2 - Analog input (SG) - Configuration									
Slot 2 - Analog input (SG) - Configuration - Channel Enable									
P7218	Slot 2 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7218	3C32h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Unit									
P7220	Slot 2 - Analog Channel Unit - 1 ... 2	0 = g 1 = kg 2 = t	0	rw, enum	0	7220	3C34h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel filter									
P7222	Slot 2 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7222	3C36h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Gain									
P7224	Slot 2 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7224	3C38h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Offset									
P7226	Slot 2 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7226	3C3Ah	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Full Scale									
P7230	Slot 2 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7230	3C3Eh	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Sensitivity									
P7232	Slot 2 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7232	3C40h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7234	Slot 2 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms)	4	rw, enum	0	7234	3C42h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)							
Slot 2 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7236	Slot 2 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7236	3C44h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7240	Slot 2 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7240	3C48h	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Filter Time Constant									
P7242	Slot 2 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7242	3C4Ah	0 ... 2	0
Slot 2 - Analog input (SG) - Configuration - Channel Variation Step									
P7244	Slot 2 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7244	3C4Ch	0 ... 2	0
Slot 2 - Analog input (SG) - Status									
Slot 2 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									
P7200	Slot 2 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7200	3C20h	0 ... 2	1
Slot 2 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7202	Slot 2 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7202	3C22h	0 ... 2	1
Slot 2 - Analog input (SG) - Status - SG Analog Channel Status									
P7206	Slot 2 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7206	3C26h	0 ... 2	1
Slot 2 - Starter manager (SCW)									
Slot 2 - Starter manager (SCW) - Status									
Slot 2 - Starter manager (SCW) - Status - Product Information									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P1200	Slot 2 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1200	24B0h	0	1
P9202	Slot2 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9202	43F2h	0	1
			Slot 2 - Starter manager (SCW) - Status - Starters						
P9210	Slot2 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9210	43FAh	0	1
P9211	Slot2 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9211	43FBh	0	1
P9212	Slot2 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9212	43FCh	0	1
P9213	Slot2 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9213	43FDh	0	1
P9214	Slot2 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9214	43FEh	0	1
P9215	Slot2 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9215	43FFh	0	1
P9216	Slot2 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9216	4400h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9217	Slot2 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9217	4401h	0	1
P9218	Slot2 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9218	4402h	0	1
P9219	Slot2 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9219	4403h	0	1
P9220	Slot2 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9220	4404h	0	1
P9221	Slot2 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9221	4405h	0	1
P9222	Slot2 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9222	4406h	0	1
P9223	Slot2 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9223	4407h	0	1
P9224	Slot2 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9224	4408h	0	1
P9225	Slot2 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9225	4409h	0	1
P9230	Slot2 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9230	440Eh	0	1
P9232	Slot2 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9232	4410h	0	1
P9234	Slot2 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9234	4412h	0	1
P9236	Slot2 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9236	4414h	0	1
P9238	Slot2 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9238	4416h	0	1
P9240	Slot2 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9240	4418h	0	1
P9242	Slot2 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9242	441Ah	0	1
P9244	Slot2 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9244	441Ch	0	1
P9260	Slot2 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9260	442Ch	0	1
P9261	Slot2 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9261	442Dh	0	1
P9262	Slot2 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9262	442Eh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9263	Slot2 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9263	442Fh	0	1
P9264	Slot2 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9264	4430h	0	1
P9265	Slot2 - P3 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9265	4431h	0	1
P9266	Slot2 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9266	4432h	0	1
P9267	Slot2 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9267	4433h	0	1
Slot 2 - Starter manager (SCW) - Status - Errors and Alarms									
P9270	Slot2 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9270	4436h	0	1
P9271	Slot2 - P2 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened	-	ro, enum	0	9271	4437h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		4 = Transparent Mode 5 = Wrong Contactor							
P9272	Slot2 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9272	4438h	0	1
P9273	Slot2 - P4 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9273	4439h	0	1
P9275	Slot2 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9275	443Bh	0	1
P9276	Slot2 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9276	443Ch	0	1
P9277	Slot2 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9277	443Dh	0	1
P9278	Slot2 - P4 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9278	443Eh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 2 - Starter manager (SCW) - Configurations									
Slot 2 - Starter manager (SCW) - Configurations - Starters									
P9280	Slot2 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9280	4440h	0	1
P9281	Slot2 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9281	4441h	0	1
P9282	Slot2 - P3 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9282	4442h	0	1
P9283	Slot2 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9283	4443h	0	1
P9285	Slot2 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9285	4445h	0	1
P9286	Slot2 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9286	4446h	0	1
P9287	Slot2 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9287	4447h	0	1
P9288	Slot2 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9288	4448h	0	1
P9203	Slot2 - Factory Reset	0 to 65535	0	rw, 16bit	0	9203	43F3h	0	1
Slot 2 - Starter manager (SCW) - Configurations - Counters									
P9250	Slot2 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9250	4422h	0	1
P9251	Slot2 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9251	4423h	0	1
P9252	Slot2 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9252	4424h	0	1
P9253	Slot2 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9253	4425h	0	1
P9254	Slot2 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9254	4426h	0	1
P9255	Slot2 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9255	4427h	0	1
P9256	Slot2 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9256	4428h	0	1
P9257	Slot2 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9257	4429h	0	1
P9258	Slot2 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9258	442Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 2 - Starter manager (SCW) - Configurations - Commands									
P9290	Slot2 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9290	444Ah	0	1
P9291	Slot2 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9291	444Bh	0	1
P9292	Slot2 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9292	444Ch	0	1
P1202	Slot 2 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20	0	rw, 32bit	0	1202	24B2h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 3 - Digital Input/Output									
Slot 3 - Digital Input/Output - Digital Outputs (DOs)									
P1302	Slot 3 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24	0	rw, 32bit	0	1302	2516h	0	1
Slot 3 - Digital Input/Output - Digital Inputs (DIs)									
P1300	Slot 3 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06	-	ro, 32bit	0	1300	2514h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
Slot 3 - Digital Input/Output - Configuration									
P1304	Slot 3 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1304	2518h	0	0
P1306	Slot 3 - Error Value	0 to 4294967295	0	rw, 32bit	0	1306	251Ah	0	0
Slot 3 - Analog Input (AI, TH, RTD)									
Slot 3 - Analog Input (AI, TH, RTD) - Configuration									
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3335	Slot 3 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3335	2D07h	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3342	Slot 3 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3342	2D0Eh	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P3349	Slot 3 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3349	2D15h	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3356	Slot 3 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3356	2D1Ch	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									
P3363	Slot 3 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3363	2D23h	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3370	Slot 3 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3370	2D2Ah	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3378	Slot 3 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3378	2D32h	0 ... 7	0
Slot 3 - Analog Input (AI, TH, RTD) - Status									
Slot 3 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3300	Slot 3 - 16-bit analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3300	2CE4h	0 ... 7	1
Slot 3 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3307	Slot 3 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3307	2CEBh	0 ... 7	1
Slot 3 - Analog Output									
Slot 3 - Analog Output - Configuration									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 3 - Analog Output - Configuration - Error Mode									
P5308	Slot 3 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5308	34BCh	0 ... 8	0
Slot 3 - Analog Output - Configuration - Error Value									
P5316	Slot 3 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5316	34C4h	0 ... 8	0
Slot 3 - Analog Output - Configuration - Channel Gain									
P5332	Slot 3 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5332	34D4h	0 ... 8	0
Slot 3 - Analog Output - Configuration - Channel Offset									
P5340	Slot 3 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5340	34DCh	0 ... 8	0
Slot 3 - Analog Output - 16-Bit Analog Output Value									
P5300	Slot 3 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5300	34B4h	0 ... 8	1
Slot 3 - Analog input (SG)									
Slot 3 - Analog input (SG) - Configuration									
Slot 3 - Analog input (SG) - Configuration - Channel Enable									
P7318	Slot 3 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7318	3C96h	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel Unit									
P7320	Slot 3 - Analog Channel Unit - 1 ... 2	0 = g 1 = kg 2 = t	0	rw, enum	0	7320	3C98h	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel filter									
P7322	Slot 3 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7322	3C9Ah	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel Gain									
P7324	Slot 3 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7324	3C9Ch	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 3 - Analog input (SG) - Configuration - Channel Offset									
P7326	Slot 3 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7326	3C9Eh	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel Full Scale									
P7330	Slot 3 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7330	3CA2h	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel Sensitivity									
P7332	Slot 3 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7332	3CA4h	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7334	Slot 3 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)	4	rw, enum	0	7334	3CA6h	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7336	Slot 3 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7336	3CA8h	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7340	Slot 3 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7340	3CACh	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Filter Time Constant									
P7342	Slot 3 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7342	3CAEh	0 ... 2	0
Slot 3 - Analog input (SG) - Configuration - Channel Variation Step									
P7344	Slot 3 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7344	3CB0h	0 ... 2	0
Slot 3 - Analog input (SG) - Status									
Slot 3 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P7300	Slot 3 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7300	3C84h	0 ... 2	1
Slot 3 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7302	Slot 3 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7302	3C86h	0 ... 2	1
Slot 3 - Analog input (SG) - Status - SG Analog Channel Status									
P7306	Slot 3 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7306	3C8Ah	0 ... 2	1
Slot 3 - Starter manager (SCW)									
Slot 3 - Starter manager (SCW) - Status									
Slot 3 - Starter manager (SCW) - Status - Product Information									
P1300	Slot 3 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1300	2514h	0	1
P9302	Slot3 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9302	4456h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 3 - Starter manager (SCW) - Status - Starters									
P9310	Slot3 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9310	445Eh	0	1
P9311	Slot3 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9311	445Fh	0	1
P9312	Slot3 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9312	4460h	0	1
P9313	Slot3 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9313	4461h	0	1
P9314	Slot3 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9314	4462h	0	1
P9315	Slot3 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9315	4463h	0	1
P9316	Slot3 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9316	4464h	0	1
P9317	Slot3 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9317	4465h	0	1
P9318	Slot3 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9318	4466h	0	1
P9319	Slot3 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9319	4467h	0	1
P9320	Slot3 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9320	4468h	0	1
P9321	Slot3 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9321	4469h	0	1
P9322	Slot3 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9322	446Ah	0	1
P9323	Slot3 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9323	446Bh	0	1
P9324	Slot3 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9324	446Ch	0	1
P9325	Slot3 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9325	446Dh	0	1
P9330	Slot3 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9330	4472h	0	1
P9332	Slot3 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9332	4474h	0	1
P9334	Slot3 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9334	4476h	0	1
P9336	Slot3 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9336	4478h	0	1
P9338	Slot3 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9338	447Ah	0	1
P9340	Slot3 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9340	447Ch	0	1
P9342	Slot3 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9342	447Eh	0	1
P9344	Slot3 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9344	4480h	0	1
P9360	Slot3 - P1 Status - Starter	1 = Stop OK	-	ro, enum	0	9360	4490h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = De-energized coil 3 = Starter OK. 4 = Energized coil							
P9361	Slot3 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9361	4491h	0	1
P9362	Slot3 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9362	4492h	0	1
P9363	Slot3 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9363	4493h	0	1
P9364	Slot3 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9364	4494h	0	1
P9365	Slot3 - P3 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9365	4495h	0	1
P9366	Slot3 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9366	4496h	0	1
P9367	Slot3 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9367	4497h	0	1
Slot 3 - Starter manager (SCW) - Status - Errors and Alarms									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9370	Slot3 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9370	449Ah	0	1
P9371	Slot3 - P2 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9371	449Bh	0	1
P9372	Slot3 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9372	449Ch	0	1
P9373	Slot3 - P4 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9373	449Dh	0	1
P9375	Slot3 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9375	449Fh	0	1
P9376	Slot3 - P2 - Last Alarm	0 = No Alarm 1 = Starter On	-	ro, enum	0	9376	44A0h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = Air Circuit Breaker 3 = CPU overtemperature							
P9377	Slot3 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9377	44A1h	0	1
P9378	Slot3 - P4 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9378	44A2h	0	1
Slot 3 - Starter manager (SCW) - Configurations									
Slot 3 - Starter manager (SCW) - Configurations - Starters									
P9380	Slot3 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9380	44A4h	0	1
P9381	Slot3 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9381	44A5h	0	1
P9382	Slot3 - P3 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9382	44A6h	0	1
P9383	Slot3 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9383	44A7h	0	1
P9385	Slot3 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9385	44A9h	0	1
P9386	Slot3 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9386	44AAh	0	1
P9387	Slot3 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9387	44ABh	0	1
P9388	Slot3 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9388	44ACh	0	1
P9303	Slot3 - Factory Reset	0 to 65535	0	rw, 16bit	0	9303	4457h	0	1
Slot 3 - Starter manager (SCW) - Configurations - Counters									
P9350	Slot3 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9350	4486h	0	1
P9351	Slot3 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9351	4487h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9352	Slot3 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9352	4488h	0	1
P9353	Slot3 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9353	4489h	0	1
P9354	Slot3 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9354	448Ah	0	1
P9355	Slot3 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9355	448Bh	0	1
P9356	Slot3 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9356	448Ch	0	1
P9357	Slot3 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9357	448Dh	0	1
P9358	Slot3 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9358	448Eh	0	1
Slot 3 - Starter manager (SCW) - Configurations - Commands									
P9390	Slot3 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9390	44AEh	0	1
P9391	Slot3 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9391	44AFh	0	1
P9392	Slot3 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9392	44B0h	0	1
P1302	Slot 3 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07	0	rw, 32bit	0	1302	2516h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 4 - Digital Input/Output									
Slot 4 - Digital Input/Output - Digital Outputs (DOs)									
P1402	Slot 4 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20	0	rw, 32bit	0	1402	257Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 4 - Digital Input/Output - Digital Inputs (DIs)									
P1400	Slot 4 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1400	2578h	0	1
Slot 4 - Digital Input/Output - Configuration									
P1404	Slot 4 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1404	257Ch	0	0
P1406	Slot 4 - Error Value	0 to 4294967295	0	rw, 32bit	0	1406	257Eh	0	0
Slot 4 - Analog Input (AI, TH, RTD)									
Slot 4 - Analog Input (AI, TH, RTD) - Configuration									
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3435	Slot 4 - Active Analog Input Channel - 1 ... 7		1	rw, enum	0	3435	2D6Bh	0 ... 7	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv							
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3442	Slot 4 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3442	2D72h	0 ... 7	0
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3449	Slot 4 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3449	2D79h	0 ... 7	0
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3456	Slot 4 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3456	2D80h	0 ... 7	0
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									
P3463	Slot 4 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3463	2D87h	0 ... 7	0
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3470	Slot 4 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3470	2D8Eh	0 ... 7	0
Slot 4 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3478	Slot 4 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3478	2D96h	0 ... 7	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 4 - Analog Input (AI, TH, RTD) - Status									
Slot 4 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3400	Slot 4 - 16-bit processed analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3400	2D48h	0 ... 7	1
Slot 4 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3407	Slot 4 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3407	2D4Fh	0 ... 7	1
Slot 4 - Analog Output									
Slot 4 - Analog Output - Configuration									
Slot 4 - Analog Output - Configuration - Error Mode									
P5408	Slot 4 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5408	3520h	0 ... 8	0
Slot 4 - Analog Output - Configuration - Error Value									
P5416	Slot 4 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5416	3528h	0 ... 8	0
Slot 4 - Analog Output - Configuration - Channel Gain									
P5432	Slot 4 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5432	3538h	0 ... 8	0
Slot 4 - Analog Output - Configuration - Channel Offset									
P5440	Slot 4 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5440	3540h	0 ... 8	0
Slot 4 - Analog Output - 16-Bit Analog Output Value									
P5400	Slot 4 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5400	3518h	0 ... 8	1
Slot 4 - Analog input (SG)									
Slot 4 - Analog input (SG) - Configuration									
Slot 4 - Analog input (SG) - Configuration - Channel Enable									
P7418	Slot 4 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7418	3CFAh	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Unit									
P7420	Slot 4 - Analog Channel Unit - 1 ... 2	0 = g	0	rw, enum	0	7420	3CFCh	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = kg 2 = t							
Slot 4 - Analog input (SG) - Configuration - Channel filter									
P7422	Slot 4 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7422	3CFEh	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Gain									
P7424	Slot 4 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7424	3D00h	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Offset									
P7426	Slot 4 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7426	3D02h	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Full Scale									
P7430	Slot 4 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7430	3D06h	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Sensitivity									
P7432	Slot 4 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7432	3D08h	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7434	Slot 4 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)	4	rw, enum	0	7434	3D0Ah	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7436	Slot 4 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7436	3D0Ch	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7440	Slot 4 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7440	3D10h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 4 - Analog input (SG) - Configuration - Filter Time Constant									
P7442	Slot 4 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7442	3D12h	0 ... 2	0
Slot 4 - Analog input (SG) - Configuration - Channel Variation Step									
P7444	Slot 4 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7444	3D14h	0 ... 2	0
Slot 4 - Analog input (SG) - Status									
Slot 4 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									
P7400	Slot 4 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7400	3CE8h	0 ... 2	1
Slot 4 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7402	Slot 4 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7402	3CEAh	0 ... 2	1
Slot 4 - Analog input (SG) - Status - Analog SG Channel Status									
P7406	Slot 4 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7406	3CEEh	0 ... 2	1
Slot 4 - Starter manager (SCW)									
Slot 4 - Starter manager (SCW) - Status									
Slot 4 - Starter manager (SCW) - Status - Product Information									
P1400	Slot 4 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12	-	ro, 32bit	0	1400	2578h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
P9402	Slot4 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9402	44BAh	0	1
Slot 4 - Starter manager (SCW) - Status - Starters									
P9410	Slot4 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9410	44C2h	0	1
P9411	Slot4 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9411	44C3h	0	1
P9412	Slot4 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9412	44C4h	0	1
P9413	Slot4 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9413	44C5h	0	1
P9414	Slot4 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9414	44C6h	0	1
P9415	Slot4 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9415	44C7h	0	1
P9416	Slot4 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9416	44C8h	0	1
P9417	Slot4 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9417	44C9h	0	1
P9418	Slot4 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9418	44CAh	0	1
P9419	Slot4 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9419	44CBh	0	1
P9420	Slot4 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9420	44CCh	0	1
P9421	Slot4 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9421	44CDh	0	1
P9422	Slot4 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9422	44CEh	0	1
P9423	Slot4 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9423	44CFh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9424	Slot4 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9424	44D0h	0	1
P9425	Slot4 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9425	44D1h	0	1
P9430	Slot4 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9430	44D6h	0	1
P9432	Slot4 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9432	44D8h	0	1
P9434	Slot4 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9434	44DAh	0	1
P9436	Slot4 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9436	44DCh	0	1
P9438	Slot4 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9438	44DEh	0	1
P9440	Slot4 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9440	44E0h	0	1
P9442	Slot4 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9442	44E2h	0	1
P9444	Slot4 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9444	44E4h	0	1
P9460	Slot4 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9460	44F4h	0	1
P9461	Slot4 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9461	44F5h	0	1
P9462	Slot4 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9462	44F6h	0	1
P9463	Slot4 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9463	44F7h	0	1
P9464	Slot4 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9464	44F8h	0	1
P9465	Slot4 - P3 Status - Direction and Errors		-	ro, 16bit	0	9465	44F9h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm							
P9466	Slot4 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9466	44FAh	0	1
P9467	Slot4 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9467	44FBh	0	1
Slot 4 - Starter manager (SCW) - Status - Errors and Alarms									
P9470	Slot4 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9470	44FEh	0	1
P9471	Slot4 - P2 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9471	44FFh	0	1
P9472	Slot4 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9472	4500h	0	1
P9473	Slot4 - P4 - Last Error	0 = No Error	-	ro, enum	0	9473	4501h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor							
P9475	Slot4 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9475	4503h	0	1
P9476	Slot4 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9476	4504h	0	1
P9477	Slot4 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9477	4505h	0	1
P9478	Slot4 - P4 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9478	4506h	0	1
Slot 4 - Starter manager (SCW) - Configurations									
Slot 4 - Starter manager (SCW) - Configurations - Starters									
P9480	Slot4 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9480	4508h	0	1
P9481	Slot4 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9481	4509h	0	1
P9482	Slot4 - P3 - Operation Mode	0 = Starter	0	rw, 8bit	0	9482	450Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Transparent							
P9483	Slot4 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9483	450Bh	0	1
P9485	Slot4 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9485	450Dh	0	1
P9486	Slot4 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9486	450Eh	0	1
P9487	Slot4 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9487	450Fh	0	1
P9488	Slot4 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9488	4510h	0	1
P9403	Slot4 - Factory Reset	0 to 65535	0	rw, 16bit	0	9403	44BBh	0	1
Slot 4 - Starter manager (SCW) - Configurations - Counters									
P9450	Slot4 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9450	44EAh	0	1
P9451	Slot4 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9451	44EBh	0	1
P9452	Slot4 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9452	44ECh	0	1
P9453	Slot4 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9453	44EDh	0	1
P9454	Slot4 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9454	44EEh	0	1
P9455	Slot4 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9455	44EFh	0	1
P9456	Slot4 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9456	44F0h	0	1
P9457	Slot4 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9457	44F1h	0	1
P9458	Slot4 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9458	44F2h	0	1
Slot 4 - Starter manager (SCW) - Configurations - Commands									
P9490	Slot4 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9490	4512h	0	1
P9491	Slot4 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9491	4513h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9492	Slot4 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9492	4514h	0	1
P1402	Slot 4 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24	0	rw, 32bit	0	1402	257Ah	0	1
Slot 5 - Digital Input/Output									
Slot 5 - Digital Input/Output - Digital Outputs (DOs)									
P1502	Slot 5 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05	0	rw, 32bit	0	1502	25DEh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 5 - Digital Input/Output - Digital Inputs (DIs)									
P1500	Slot 5 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19	-	ro, 32bit	0	1500	25DCh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
Slot 5 - Digital Input/Output - Configuration									
P1504	Slot 5 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1504	25E0h	0	0
P1506	Slot 5 - Error Value	0 to 4294967295	0	rw, 32bit	0	1506	25E2h	0	0
Slot 5 - Analog Input (AI, TH, RTD)									
Slot 5 - Analog Input (AI, TH, RTD) - Configuration									
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3535	Slot 5 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3535	2DCFh	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3542	Slot 5 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3542	2DD6h	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3549	Slot 5 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3549	2DDDh	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3556	Slot 5 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3556	2DE4h	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P3563	Slot 5 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3563	2DEBh	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3570	Slot 5 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3570	2DF2h	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3578	Slot 5 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3578	2DFAh	0 ... 7	0
Slot 5 - Analog Input (AI, TH, RTD) - Status									
Slot 5 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3500	Slot 5 - 16-bit processed analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3500	2DACh	0 ... 7	1
Slot 5 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3507	Slot 5 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3507	2DB3h	0 ... 7	1
Slot 5 - Analog Output									
Slot 5 - Analog Output - Configuration									
Slot 5 - Analog Output - Configuration - Error Mode									
P5508	Slot 5 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5508	3584h	0 ... 8	0
Slot 5 - Analog Output - Configuration - Error Value									
P5516	Slot 5 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5516	358Ch	0 ... 8	0
Slot 5 - Analog Output - Configuration - Channel Gain									
P5532	Slot 5 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5532	359Ch	0 ... 8	0
Slot 5 - Analog Output - Configuration - Channel Offset									
P5540	Slot 5 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5540	35A4h	0 ... 8	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 5 - Analog Output - 16-Bit Analog Output Value									
P5500	Slot 5 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5500	357Ch	0 ... 8	1
Slot 5 - Analog input (SG)									
Slot 5 - Analog input (SG) - Configuration									
Slot 5 - Analog input (SG) - Configuration - Channel Enable									
P7518	Slot 5 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7518	3D5Eh	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Unit									
P7520	Slot 5 - Analog Channel Unit - 1 ... 2	0 = g 1 = kg 2 = t	0	rw, enum	0	7520	3D60h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel filter									
P7522	Slot 5 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7522	3D62h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Gain									
P7524	Slot 5 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7524	3D64h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Offset									
P7526	Slot 5 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7526	3D66h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Full Scale									
P7530	Slot 5 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7530	3D6Ah	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Sensitivity									
P7532	Slot 5 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7532	3D6Ch	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7534	Slot 5 - Analog Channel Sampling Rate - 1 ... 2		4	rw, enum	0	7534	3D6Eh	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)							
Slot 5 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7536	Slot 5 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7536	3D70h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7540	Slot 5 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7540	3D74h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Filter Time Constant									
P7542	Slot 5 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7542	3D76h	0 ... 2	0
Slot 5 - Analog input (SG) - Configuration - Channel Variation Step									
P7544	Slot 5 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7544	3D78h	0 ... 2	0
Slot 5 - Analog input (SG) - Status									
Slot 5 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									
P7500	Slot 5 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7500	3D4Ch	0 ... 2	1
Slot 5 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7502	Slot 5 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7502	3D4Eh	0 ... 2	1
Slot 5 - Analog input (SG) - Status - Analog SG Channel Status									
P7506	Slot 5 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7506	3D52h	0 ... 2	1
Slot 5 - Starter manager (SCW)									
Slot 5 - Starter manager (SCW) - Status									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 5 - Starter manager (SCW) - Status - Product Information									
P1500	Slot 5 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1500	25DCh	0	1
P9502	Slot5 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9502	451Eh	0	1
Slot 5 - Starter manager (SCW) - Status - Starters									
P9510	Slot5 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9510	4526h	0	1
P9511	Slot5 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9511	4527h	0	1
P9512	Slot5 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9512	4528h	0	1
P9513	Slot5 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9513	4529h	0	1
P9514	Slot5 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9514	452Ah	0	1
P9515	Slot5 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9515	452Bh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9516	Slot5 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9516	452Ch	0	1
P9517	Slot5 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9517	452Dh	0	1
P9518	Slot5 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9518	452Eh	0	1
P9519	Slot5 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9519	452Fh	0	1
P9520	Slot5 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9520	4530h	0	1
P9521	Slot5 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9521	4531h	0	1
P9522	Slot5 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9522	4532h	0	1
P9523	Slot5 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9523	4533h	0	1
P9524	Slot5 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9524	4534h	0	1
P9525	Slot5 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9525	4535h	0	1
P9530	Slot5 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9530	453Ah	0	1
P9532	Slot5 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9532	453Ch	0	1
P9534	Slot5 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9534	453Eh	0	1
P9536	Slot5 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9536	4540h	0	1
P9538	Slot5 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9538	4542h	0	1
P9540	Slot5 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9540	4544h	0	1
P9542	Slot5 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9542	4546h	0	1
P9544	Slot5 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9544	4548h	0	1
P9560	Slot5 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9560	4558h	0	1
P9561	Slot5 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9561	4559h	0	1
P9562	Slot5 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil	-	ro, enum	0	9562	455Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		3 = Starter OK. 4 = Energized coil							
P9563	Slot5 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9563	455Bh	0	1
P9564	Slot5 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9564	455Ch	0	1
P9565	Slot5 - P3 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9565	455Dh	0	1
P9566	Slot5 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9566	455Eh	0	1
P9567	Slot5 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9567	455Fh	0	1
Slot 5 - Starter manager (SCW) - Status - Errors and Alarms									
P9570	Slot5 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9570	4562h	0	1
P9571	Slot5 - P2 - Last Error	0 = No Error 1 = Stuck Contact	-	ro, enum	0	9571	4563h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor							
P9572	Slot5 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9572	4564h	0	1
P9573	Slot5 - P4 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9573	4565h	0	1
P9575	Slot5 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9575	4567h	0	1
P9576	Slot5 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9576	4568h	0	1
P9577	Slot5 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9577	4569h	0	1
P9578	Slot5 - P4 - Last Alarm	0 = No Alarm 1 = Starter On	-	ro, enum	0	9578	456Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = Air Circuit Breaker 3 = CPU overtemperature							
Slot 5 - Starter manager (SCW) - Configurations									
Slot 5 - Starter manager (SCW) - Configurations - Starters									
P9580	Slot5 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9580	456Ch	0	1
P9581	Slot5 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9581	456Dh	0	1
P9582	Slot5 - P3 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9582	456Eh	0	1
P9583	Slot5 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9583	456Fh	0	1
P9585	Slot5 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9585	4571h	0	1
P9586	Slot5 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9586	4572h	0	1
P9587	Slot5 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9587	4573h	0	1
P9588	Slot5 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9588	4574h	0	1
P9503	Slot5 - Factory Reset	0 to 65535	0	rw, 16bit	0	9503	451Fh	0	1
Slot 5 - Starter manager (SCW) - Configurations - Counters									
P9550	Slot5 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9550	454Eh	0	1
P9551	Slot5 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9551	454Fh	0	1
P9552	Slot5 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9552	4550h	0	1
P9553	Slot5 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9553	4551h	0	1
P9554	Slot5 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9554	4552h	0	1
P9555	Slot5 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9555	4553h	0	1
P9556	Slot5 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9556	4554h	0	1
P9557	Slot5 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9557	4555h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9558	Slot5 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9558	4556h	0	1
Slot 5 - Starter manager (SCW) - Configurations - Commands									
P9590	Slot5 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9590	4576h	0	1
P9591	Slot5 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9591	4577h	0	1
P9592	Slot5 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9592	4578h	0	1
P1502	Slot 5 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19	0	rw, 32bit	0	1502	25DEh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 6 - Digital Input/Output									
Slot 6 - Digital Input/Output - Digital Outputs (DOs)									
P1602	Slot 6 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24	0	rw, 32bit	0	1602	2642h	0	1
Slot 6 - Digital Input/Output - Digital Inputs (DIs)									
P1600	Slot 6 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05	-	ro, 32bit	0	1600	2640h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
Slot 6 - Digital Input/Output - Configuration									
P1604	Slot 6 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1604	2644h	0	0
P1606	Slot 6 - Error Value	0 to 4294967295	0	rw, 32bit	0	1606	2646h	0	0
Slot 6 - Analog Input (AI, TH, RTD)									
Slot 6 - Analog Input (AI, TH, RTD) - Configuration									
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3635	Slot 6 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3635	2E33h	0 ... 7	0
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3642	Slot 6 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3642	2E3Ah	0 ... 7	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3649	Slot 6 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3649	2E41h	0 ... 7	0
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3656	Slot 6 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3656	2E48h	0 ... 7	0
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									
P3663	Slot 6 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3663	2E4Fh	0 ... 7	0
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3670	Slot 6 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3670	2E56h	0 ... 7	0
Slot 6 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3678	Slot 6 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3678	2E5Eh	0 ... 7	0
Slot 6 - Analog Input (AI, TH, RTD) - Status									
Slot 6 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3600	Slot 6 - 16-bit processed analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3600	2E10h	0 ... 7	1
Slot 6 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3607	Slot 6 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3607	2E17h	0 ... 7	1
Slot 6 - Analog Output									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 6 - Analog Output - Configuration									
Slot 6 - Analog Output - Configuration - Error Mode									
P5608	Slot 6 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5608	35E8h	0 ... 8	0
Slot 6 - Analog Output - Configuration - Error Value									
P5616	Slot 6 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5616	35F0h	0 ... 8	0
Slot 6 - Analog Output - Configuration - Channel Gain									
P5632	Slot 6 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5632	3600h	0 ... 8	0
Slot 6 - Analog Output - Configuration - Channel Offset									
P5640	Slot 6 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5640	3608h	0 ... 8	0
Slot 6 - Analog Output - 16-Bit Analog Output Value									
P5600	Slot 6 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5600	35E0h	0 ... 8	1
Slot 6 - Analog input (SG)									
Slot 6 - Analog input (SG) - Configuration									
Slot 6 - Analog input (SG) - Configuration - Channel Enable									
P7618	Slot 6 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7618	3DC2h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Unit									
P7620	Slot 6 - Analog Channel Unit - 1 ... 2	0 = g 1 = kg 2 = t	0	rw, enum	0	7620	3DC4h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel filter									
P7622	Slot 6 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7622	3DC6h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Gain									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P7624	Slot 6 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7624	3DC8h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Offset									
P7626	Slot 6 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7626	3DCAh	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Full Scale									
P7630	Slot 6 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7630	3DCEh	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Sensitivity									
P7632	Slot 6 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7632	3DD0h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7634	Slot 6 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)	4	rw, enum	0	7634	3DD2h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7636	Slot 6 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7636	3DD4h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7640	Slot 6 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7640	3DD8h	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Filter Time Constant									
P7642	Slot 6 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7642	3DDAh	0 ... 2	0
Slot 6 - Analog input (SG) - Configuration - Channel Variation Step									
P7644	Slot 6 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7644	3DDCh	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 6 - Analog input (SG) - Status									
Slot 6 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									
P7600	Slot 6 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7600	3DB0h	0 ... 2	1
Slot 6 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7602	Slot 6 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7602	3DB2h	0 ... 2	1
Slot 6 - Analog input (SG) - Status - SG Analog Channel Status									
P7606	Slot 6 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7606	3DB6h	0 ... 2	1
Slot 6 - Starter manager (SCW)									
Slot 6 - Starter manager (SCW) - Status									
Slot 6 - Starter manager (SCW) - Status - Product Information									
P1600	Slot 6 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23	-	ro, 32bit	0	1600	2640h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 23 = DI24							
P9602	Slot6 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9602	4582h	0	1
Slot 6 - Starter manager (SCW) - Status - Starters									
P9610	Slot6 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9610	458Ah	0	1
P9611	Slot6 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9611	458Bh	0	1
P9612	Slot6 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9612	458Ch	0	1
P9613	Slot6 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9613	458Dh	0	1
P9614	Slot6 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9614	458Eh	0	1
P9615	Slot6 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9615	458Fh	0	1
P9616	Slot6 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9616	4590h	0	1
P9617	Slot6 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9617	4591h	0	1
P9618	Slot6 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9618	4592h	0	1
P9619	Slot6 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9619	4593h	0	1
P9620	Slot6 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9620	4594h	0	1
P9621	Slot6 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9621	4595h	0	1
P9622	Slot6 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9622	4596h	0	1
P9623	Slot6 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9623	4597h	0	1
P9624	Slot6 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9624	4598h	0	1
P9625	Slot6 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9625	4599h	0	1
P9630	Slot6 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9630	459Eh	0	1
P9632	Slot6 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9632	45A0h	0	1
P9634	Slot6 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9634	45A2h	0	1
P9636	Slot6 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9636	45A4h	0	1
P9638	Slot6 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9638	45A6h	0	1
P9640	Slot6 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9640	45A8h	0	1
P9642	Slot6 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9642	45AAh	0	1
P9644	Slot6 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9644	45ACh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9660	Slot6 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9660	45BCh	0	1
P9661	Slot6 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9661	45BDh	0	1
P9662	Slot6 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9662	45BEh	0	1
P9663	Slot6 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9663	45BFh	0	1
P9664	Slot6 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9664	45C0h	0	1
P9665	Slot6 - P3 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9665	45C1h	0	1
P9666	Slot6 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9666	45C2h	0	1
P9667	Slot6 - P4 Status - Direction and Errors	Bit 0 = Direction	-	ro, 16bit	0	9667	45C3h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 1 = Active error Bit 2 = Active Alarm							
Slot 6 - Starter manager (SCW) - Status - Errors and Alarms									
P9670	Slot6 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9670	45C6h	0	1
P9671	Slot6 - P2 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9671	45C7h	0	1
P9672	Slot6 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9672	45C8h	0	1
P9673	Slot6 - P4 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9673	45C9h	0	1
P9675	Slot6 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9675	45CBh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9676	Slot6 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9676	45CCh	0	1
P9677	Slot6 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9677	45CDh	0	1
P9678	Slot6 - P4 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9678	45CEh	0	1
Slot 6 - Starter manager (SCW) - Configurations									
Slot 6 - Starter manager (SCW) - Configurations - Starters									
P9680	Slot6 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9680	45D0h	0	1
P9681	Slot6 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9681	45D1h	0	1
P9682	Slot6 - P3 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9682	45D2h	0	1
P9683	Slot6 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9683	45D3h	0	1
P9680	Slot6 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9680	45D0h	0	1
P9686	Slot6 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9686	45D6h	0	1
P9687	Slot6 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9687	45D7h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9688	Slot6 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9688	45D8h	0	1
P9603	Slot6 - Factory Reset	0 to 65535	0	rw, 16bit	0	9603	4583h	0	1
Slot 6 - Starter manager (SCW) - Configurations - Counters									
P9650	Slot6 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9650	45B2h	0	1
P9651	Slot6 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9651	45B3h	0	1
P9652	Slot6 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9652	45B4h	0	1
P9653	Slot6 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9653	45B5h	0	1
P9654	Slot6 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9654	45B6h	0	1
P9655	Slot6 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9655	45B7h	0	1
P9656	Slot6 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9656	45B8h	0	1
P9657	Slot6 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9657	45B9h	0	1
P9658	Slot6 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9658	45BAh	0	1
Slot 6 - Starter manager (SCW) - Configurations - Commands									
P9690	Slot6 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9690	45DAh	0	1
P9691	Slot6 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9691	45DBh	0	1
P9692	Slot6 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9692	45DCh	0	1
P1602	Slot 6 - Digital Outputs (DOs)	Bit 0 = DO01	0	rw, 32bit	0	1602	2642h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 7 - Digital Input/Output									
Slot 7 - Digital Input/Output - Digital Outputs (DOs)									
P1702	Slot 7 - Digital Outputs (DOs)	 Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14	0	rw, 32bit	0	1702	26A6h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 7 - Digital Input/Output - Digital Inputs (DIs)									
P1700	Slot 7 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1700	26A4h	0	1
Slot 7 - Digital Input/Output - Configuration									
P1704	Slot 7 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1704	26A8h	0	0
P1706	Slot 7 - Error Value	0 to 4294967295	0	rw, 32bit	0	1706	26AAh	0	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 7 - Analog Input (AI, TH, RTD)									
Slot 7 - Analog Input (AI, TH, RTD) - Configuration									
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3735	Slot 7 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3735	2E97h	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3742	Slot 7 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3742	2E9Eh	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3749	Slot 7 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3749	2EA5h	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3756	Slot 7 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1 2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1	1	rw, enum	0	3756	2EACh	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									
P3763	Slot 7 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3763	2EB3h	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P3770	Slot 7 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3770	2EBAh	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3778	Slot 7 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3778	2EC2h	0 ... 7	0
Slot 7 - Analog Input (AI, TH, RTD) - Status									
Slot 7 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3700	Slot 7 - 16-bit processed analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3700	2E74h	0 ... 7	1
Slot 7 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3707	Slot 7 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3707	2E7Bh	0 ... 7	1
Slot 7 - Analog Output									
Slot 7 - Analog Output - Configuration									
Slot 7 - Analog Output - Configuration - Error Mode									
P5708	Slot 7 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5708	364Ch	0 ... 8	0
Slot 7 - Analog Output - Configuration - Error Value									
P5716	Slot 7 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5716	3654h	0 ... 8	0
Slot 7 - Analog Output - Configuration - Channel Gain									
P5732	Slot 7 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5732	3664h	0 ... 8	0
Slot 7 - Analog Output - Configuration - Channel Offset									
P5740	Slot 7 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5740	366Ch	0 ... 8	0
Slot 7 - Analog Output - 16-Bit Analog Output Value									
P5700	Slot 7 - 16-Bit Analog Output Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5700	3644h	0 ... 8	1
Slot 7 - Analog input (SG)									
Slot 7 - Analog input (SG) - Configuration									
Slot 7 - Analog input (SG) - Configuration - Channel Enable									
P7718	Slot 7 - Enables Analog Channel - 1 ... 2	0 = Inactive	1	rw, enum	0	7718	3E26h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Active							
Slot 7 - Analog input (SG) - Configuration - Channel Unit									
P7720	Slot 7 - Analog Channel Unit - 1 ... 2	0 = g 1 = kg 2 = t	0	rw, enum	0	7720	3E28h	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel filter									
P7722	Slot 7 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7722	3E2Ah	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel Gain									
P7724	Slot 7 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7724	3E2Ch	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel Offset									
P7726	Slot 7 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7726	3E2Eh	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel Full Scale									
P7730	Slot 7 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7730	3E32h	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel Sensitivity									
P7732	Slot 7 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7732	3E34h	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7734	Slot 7 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)	4	rw, enum	0	7734	3E36h	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7736	Slot 7 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7736	3E38h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 7 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7740	Slot 7 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7740	3E3Ch	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Filter Time Constant									
P7742	Slot 7 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7742	3E3Eh	0 ... 2	0
Slot 7 - Analog input (SG) - Configuration - Channel Variation Step									
P7744	Slot 7 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7744	3E40h	0 ... 2	0
Slot 7 - Analog input (SG) - Status									
Slot 7 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									
P7700	Slot 7 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7700	3E14h	0 ... 2	1
Slot 7 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7702	Slot 7 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7702	3E16h	0 ... 2	1
Slot 7 - Analog input (SG) - Status - SG Analog Channel Status									
P7706	Slot 7 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7706	3E1Ah	0 ... 2	1
Slot 7 - Starter manager (SCW)									
Slot 7 - Starter manager (SCW) - Status									
Slot 7 - Starter manager (SCW) - Status - Product Information									
P1700	Slot 7 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07	-	ro, 32bit	0	1700	26A4h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
P9702	Slot7 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9702	45E6h	0	1
Slot 7 - Starter manager (SCW) - Status - Starters									
P9710	Slot7 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9710	45EEh	0	1
P9711	Slot7 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9711	45EFh	0	1
P9712	Slot7 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9712	45F0h	0	1
P9713	Slot7 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9713	45F1h	0	1
P9714	Slot7 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9714	45F2h	0	1
P9715	Slot7 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9715	45F3h	0	1
P9716	Slot7 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9716	45F4h	0	1
P9717	Slot7 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9717	45F5h	0	1
P9718	Slot7 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9718	45F6h	0	1
P9719	Slot7 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9719	45F7h	0	1
P9720	Slot7 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9720	45F8h	0	1
P9721	Slot7 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9721	45F9h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9722	Slot7 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9722	45FAh	0	1
P9723	Slot7 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9723	45FBh	0	1
P9724	Slot7 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9724	45FCh	0	1
P9725	Slot7 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9725	45FDh	0	1
P9730	Slot7 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9730	4602h	0	1
P9732	Slot7 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9732	4604h	0	1
P9734	Slot7 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9734	4606h	0	1
P9736	Slot7 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9736	4608h	0	1
P9738	Slot7 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9738	460Ah	0	1
P9740	Slot7 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9740	460Ch	0	1
P9742	Slot7 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9742	460Eh	0	1
P9744	Slot7 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9744	4610h	0	1
P9760	Slot7 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9760	4620h	0	1
P9761	Slot7 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9761	4621h	0	1
P9762	Slot7 - P2 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9762	4622h	0	1
P9763	Slot7 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9763	4623h	0	1
P9764	Slot7 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil	-	ro, enum	0	9764	4624h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		3 = Starter OK. 4 = Energized coil							
P9765	Slot7 - P3 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9765	4625h	0	1
P9766	Slot7 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9766	4626h	0	1
P9767	Slot7 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9767	4627h	0	1
Slot 7 - Starter manager (SCW) - Status - Errors and Alarms									
P9770	Slot7 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9770	462Ah	0	1
P9771	Slot7 - P2 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9771	462Bh	0	1
P9772	Slot7 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode	-	ro, enum	0	9772	462Ch	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		5 = Wrong Contactor							
P9773	Slot7 - P4 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9773	462Dh	0	1
P9775	Slot7 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9775	462Fh	0	1
P9776	Slot7 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9776	4630h	0	1
P9777	Slot7 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9777	4631h	0	1
P9778	Slot7 - P4 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9778	4632h	0	1
Slot 7 - Starter manager (SCW) - Configurations									
Slot 7 - Starter manager (SCW) - Configurations - Starters									
P9780	Slot7 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9780	4634h	0	1
P9781	Slot7 - P2 - Operation Mode	0 = Starter	0	rw, 8bit	0	9781	4635h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Transparent							
P9782	Slot7 - P3 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9782	4636h	0	1
P9780	Slot7 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9780	4634h	0	1
P9785	Slot7 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9785	4639h	0	1
P9786	Slot7 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9786	463Ah	0	1
P9787	Slot7 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9787	463Bh	0	1
P9788	Slot7 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9788	463Ch	0	1
P9703	Slot7 - Factory Reset	0 to 65535	0	rw, 16bit	0	9703	45E7h	0	1
Slot 7 - Starter manager (SCW) - Configurations - Counters									
P9750	Slot7 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9750	4616h	0	1
P9751	Slot7 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9751	4617h	0	1
P9752	Slot7 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9752	4618h	0	1
P9753	Slot7 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9753	4619h	0	1
P9754	Slot7 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9754	461Ah	0	1
P9755	Slot7 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9755	461Bh	0	1
P9756	Slot7 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9756	461Ch	0	1
P9757	Slot7 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9757	461Dh	0	1
P9758	Slot7 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9758	461Eh	0	1
Slot 7 - Starter manager (SCW) - Configurations - Commands									
P9790	Slot7 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9790	463Eh	0	1
P9791	Slot7 - Reverse Starter Command	Bit 0 = Starter 1 - reverse	0	rw, 16bit	0	9791	463Fh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse							
P9792	Slot7 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9792	4640h	0	1
P1702	Slot 7 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24	0	rw, 32bit	0	1702	26A6h	0	1
Slot 8 - Digital Input/Output									
Slot 8 - Digital Input/Output - Digital Outputs (DOs)									
P1802	Slot 8 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02	0	rw, 32bit	0	1802	270Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17 Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							
Slot 8 - Digital Input/Output - Digital Inputs (DIs)									
P1800	Slot 8 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16	-	ro, 32bit	0	1800	2708h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24							
Slot 8 - Digital Input/Output - Configuration									
P1804	Slot 8 - Error Mode of the Digital Outputs	0 to 4294967295	0	rw, 32bit	0	1804	270Ch	0	0
P1806	Slot 8 - Error Value	0 to 4294967295	0	rw, 32bit	0	1806	270Eh	0	0
Slot 8 - Analog Input (AI, TH, RTD)									
Slot 8 - Analog Input (AI, TH, RTD) - Configuration									
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Active Channel									
P3835	Slot 8 - Active Analog Input Channel - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active with CJC / rtd: Active 2 = ai: Reserv / th: Active without CJC / rtd: Reserv	1	rw, enum	0	3835	2EFBh	0 ... 7	0
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Channel Type									
P3842	Slot 8 - Analog Input Channel Type - 1 ... 7	0 = ai: 0-10V / th: J / rtd: PT100 1 = ai: 0-20mA / th: K / rtd: PT1000 2 = ai: 4-20mA / th: T / rtd: Reserv	0	rw, enum	0	3842	2F02h	0 ... 7	0
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Channel Unit									
P3849	Slot 8 - Analog Input Channel Unit 1 - 1 ... 7	0 = ai: Not used/ th: °C / rtd: °C 1 = ai: Not used/ th: °F / rtd: °F 2 = ai: Not used / th: K / rtd: K	0	rw, enum	0	3849	2F09h	0 ... 7	0
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Channel Decimal Digit									
P3856	Slot 8 - Decimal Digit of the Analog Input Channel - 1 ... 7	0 = ai: 0 / th: 0 / rtd: 0 1 = ai: 1 / th: 1 / rtd: 1	1	rw, enum	0	3856	2F10h	0 ... 7	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		2 = ai: 2 / th: 1 / rtd: 1 3 = ai: 3 / th: 1 / rtd: 1							
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Channel filter									
P3863	Slot 8 - Filter of the Analog Input Channel - 1 ... 7	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	3863	2F17h	0 ... 7	0
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Channel Gain									
P3870	Slot 8 - Gain of the Analog Input Channel - 1 ... 7	-32768 to 32767	1000	rw, s16bit	0	3870	2F1Eh	0 ... 7	0
Slot 8 - Analog Input (AI, TH, RTD) - Configuration - Channel Offset									
P3878	Slot 8 - Offset of the Analog Input Channel - 1 ... 7	-32768 to 32767	0	rw, s16bit	0	3878	2F26h	0 ... 7	0
Slot 8 - Analog Input (AI, TH, RTD) - Status									
Slot 8 - Analog Input (AI, TH, RTD) - Status - 16-Bit Analog Input									
P3800	Slot 8 - 16-bit processed analog input - 1 ... 7	-32768 to 32767	-	ro, s16bit	0	3800	2ED8h	0 ... 7	1
Slot 8 - Analog Input (AI, TH, RTD) - Status - Analog Channel Status									
P3807	Slot 8 - Analog Channel Status - 1 ... 7	0 = ai: Inactive / th: Inactive / rtd: Inactive 1 = ai: Active / th: Active / rdt: Active 2 = ai: Open / th: Open / rtd: Open	-	ro, enum	0	3807	2EDFh	0 ... 7	1
Slot 8 - Analog Output									
Slot 8 - Analog Output - Configuration									
Slot 8 - Analog Output - Configuration - Error Mode									
P5808	Slot 8 - Analog Output Error Mode - 1 ... 8	0 to 255	0	rw, 8bit	0	5808	36B0h	0 ... 8	0
Slot 8 - Analog Output - Configuration - Error Value									
P5816	Slot 8 - Analog Output Error Value - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5816	36B8h	0 ... 8	0
Slot 8 - Analog Output - Configuration - Channel Gain									
P5832	Slot 8 - Analog Output Channel Gain - 1 ... 8	0 to 65535	1000	rw, 16bit	0	5832	36C8h	0 ... 8	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 8 - Analog Output - Configuration - Channel Offset									
P5840	Slot 8 - Analog Output Channel Offset - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5840	36D0h	0 ... 8	0
Slot 8 - Analog Output - 16-Bit Analog Output Value									
P5800	Slot 8 - 16-Bit Analog Output - 1 ... 8	-32768 to 32767	0	rw, s16bit	0	5800	36A8h	0 ... 8	1
Slot 8 - Analog input (SG)									
Slot 8 - Analog input (SG) - Configuration									
Slot 8 - Analog input (SG) - Configuration - Channel Enable									
P7818	Slot 8 - Enables Analog Channel - 1 ... 2	0 = Inactive 1 = Active	1	rw, enum	0	7818	3E8Ah	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel Unit									
P7820	Slot 8 - Analog Channel Unit - 1 ... 2	0 = g 1 = kg 2 = t	0	rw, enum	0	7820	3E8Ch	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel filter									
P7822	Slot 8 - Analog Channel Filter - 1 ... 2	0 = No Filter 1 = Average of 2 Values 2 = Average of 4 Values 3 = Average of 8 Values 4 = Average of 16 Values 5 = Average of 32 Values	4	rw, enum	0	7822	3E8Eh	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel Gain									
P7824	Slot 8 - Analog Channel Gain - 1 ... 2	-32768 to 32767	1000	rw, s16bit	0	7824	3E90h	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel Offset									
P7826	Slot 8 - Analog Channel Offset - 1 ... 2	-2147483648 to 2147483647	0	rw, s32bit	0	7826	3E92h	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel Full Scale									
P7830	Slot 8 - Analog Channel Full Scale - 1 ... 2	0 to 65535	10000	rw, 16bit	0	7830	3E96h	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel Sensitivity									
P7832	Slot 8 - Analog Channel Sensitivity - 1 ... 2	0 to 255	2	rw, 8bit	0	7832	3E98h	0 ... 2	0

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 8 - Analog input (SG) - Configuration - Channel Sampling Rate									
P7834	Slot 8 - Analog Channel Sampling Rate - 1 ... 2	0 = 1.68 SPS (596.12 ms) 1 = 3.35 SPS (298.06 ms) 2 = 6.71 SPS (149.03 ms) 3 = 13.42 SPS (74.52 ms) 4 = 26.83 SPS (36.27 ms) 5 = 53.66 SPS (18.64 ms) 6 = 107.32 SPS (9.32 ms)	4	rw, enum	0	7834	3E9Ah	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Maximum Channel Variation									
P7836	Slot 8 - Maximum Analog Channel Variation - 1 ... 2	0 to 4294967295	100000	rw, 32bit	0	7836	3E9Ch	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Discard Maximum and Minimum Value									
P7840	Slot 8 - Analog Channel Discard Value - 1 ... 2	0 = Maintain 1 = Discard	0	rw, enum	0	7840	3EA0h	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Filter Time Constant									
P7842	Slot 8 - Analog Channel Filter - 1 ... 2	0 to 65535	0	rw, 16bit	0	7842	3EA2h	0 ... 2	0
Slot 8 - Analog input (SG) - Configuration - Channel Variation Step									
P7844	Slot 8 - Analog Channel Variation Step - 1 ... 2	0 = step 1 (000, 001, 002, 003...) 1 = step 2 (000, 002, 004, 006 ...) 2 = step 5 (000, 005, 010, 015...) 3 = step 10 (000, 010, 020, 030...) 4 = step 50 (000, 050, 100, 150...)	0	rw, enum	0	7844	3EA4h	0 ... 2	0
Slot 8 - Analog input (SG) - Status									
Slot 8 - Analog input (SG) - Status - Weight (g, kg, t) 16 Bit									
P7800	Slot 8 - Weight (g, kg, t) 16 Bit - 1 ... 2	-32768 to 32767	-	ro, s16bit	0	7800	3E78h	0 ... 2	1
Slot 8 - Analog input (SG) - Status - Weight (g, kg, t) 32 Bit									
P7802	Slot 8 - Weight (g, kg, t) 32 Bit - 1 ... 2	-2147483648 to 2147483647	-	ro, s32bit	0	7802	3E7Ah	0 ... 2	1
Slot 8 - Analog input (SG) - Status - SG Analog Channel Status									
P7806	Slot 8 - Analog Channel Status - 1 ... 2	0 = Inactive 1 = Active	-	ro, enum	0	7806	3E7Eh	0 ... 2	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
Slot 8 - Starter manager (SCW)									
Slot 8 - Starter manager (SCW) - Status									
Slot 8 - Starter manager (SCW) - Status - Product Information									
P1800	Slot 8 - Digital Inputs (DIs)	Bit 0 = DI01 Bit 1 = DI02 Bit 2 = DI03 Bit 3 = DI04 Bit 4 = DI05 Bit 5 = DI06 Bit 6 = DI07 Bit 7 = DI08 Bit 8 = DI09 Bit 9 = DI10 Bit 10 = DI11 Bit 11 = DI12 Bit 12 = DI13 Bit 13 = DI14 Bit 14 = DI15 Bit 15 = DI16 Bit 16 = DI17 Bit 17 = DI18 Bit 18 = DI19 Bit 19 = DI20 Bit 20 = DI21 Bit 21 = DI22 Bit 22 = DI23 Bit 23 = DI24	-	ro, 32bit	0	1800	2708h	0	1
P9802	Slot8 - CPU Temperature	-100 to 100 °C	-	ro, s8bit	0	9802	464Ah	0	1
Slot 8 - Starter manager (SCW) - Status - Starters									
P9810	Slot8 - P1 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9810	4652h	0	1
P9811	Slot8 - P1 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9811	4653h	0	1
P9812	Slot8 - P1 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9812	4654h	0	1
P9813	Slot8 - P1 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9813	4655h	0	1
P9814	Slot8 - P2 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9814	4656h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9815	Slot8 - P2 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9815	4657h	0	1
P9816	Slot8 - P2 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9816	4658h	0	1
P9817	Slot8 - P2 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9817	4659h	0	1
P9818	Slot8 - P3 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9818	465Ah	0	1
P9819	Slot8 - P3 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9819	465Bh	0	1
P9820	Slot8 - P3 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9820	465Ch	0	1
P9821	Slot8 - P3 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9821	465Dh	0	1
P9822	Slot8 - P4 Contactor 1 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9822	465Eh	0	1
P9823	Slot8 - P4 Contactor 1 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9823	465Fh	0	1
P9824	Slot8 - P4 Contactor 2 Closing Time	0 to 65535 ms	-	ro, 16bit	0	9824	4660h	0	1
P9825	Slot8 - P4 Contactor 2 Opening Time	0 to 65535 ms	-	ro, 16bit	0	9825	4661h	0	1
P9830	Slot8 - P1 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9830	4666h	0	1
P9832	Slot8 - P1 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9832	4668h	0	1
P9834	Slot8 - P2 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9834	466Ah	0	1
P9836	Slot8 - P2 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9836	466Ch	0	1
P9838	Slot8 - P3 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9838	466Eh	0	1
P9840	Slot8 - P3 C2 operation counter	0 to 10000000	-	ro, 32bit	0	9840	4670h	0	1
P9842	Slot8 - P4 C1 operation counter	0 to 10000000	-	ro, 32bit	0	9842	4672h	0	1
P9844	Slot8 - P4 C4 operation counter	0 to 10000000	-	ro, 32bit	0	9844	4674h	0	1
P9860	Slot8 - P1 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9860	4684h	0	1
P9861	Slot8 - P1 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9861	4685h	0	1
P9862	Slot8 - P2 Status - Starter		-	ro, enum	0	9862	4686h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil							
P9863	Slot8 - P2 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9863	4687h	0	1
P9864	Slot8 - P3 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9864	4688h	0	1
P9865	Slot8 - P3 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9865	4689h	0	1
P9866	Slot8 - P4 Status - Starter	1 = Stop OK 2 = De-energized coil 3 = Starter OK. 4 = Energized coil	-	ro, enum	0	9866	468Ah	0	1
P9867	Slot8 - P4 Status - Direction and Errors	Bit 0 = Direction Bit 1 = Active error Bit 2 = Active Alarm	-	ro, 16bit	0	9867	468Bh	0	1
Slot 8 - Starter manager (SCW) - Status - Errors and Alarms									
P9870	Slot8 - P1 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9870	468Eh	0	1
P9871	Slot8 - P2 - Last Error		-	ro, enum	0	9871	468Fh	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor							
P9872	Slot8 - P3 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9872	4690h	0	1
P9873	Slot8 - P4 - Last Error	0 = No Error 1 = Stuck Contact 2 = Burned Coil 3 = Contactor Opened 4 = Transparent Mode 5 = Wrong Contactor	-	ro, enum	0	9873	4691h	0	1
P9875	Slot8 - P1 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9875	4693h	0	1
P9876	Slot8 - P2 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9876	4694h	0	1
P9877	Slot8 - P3 - Last Alarm	0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature	-	ro, enum	0	9877	4695h	0	1
P9878	Slot8 - P4 - Last Alarm		-	ro, enum	0	9878	4696h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		0 = No Alarm 1 = Starter On 2 = Air Circuit Breaker 3 = CPU overtemperature							
Slot 8 - Starter manager (SCW) - Configurations									
Slot 8 - Starter manager (SCW) - Configurations - Starters									
P9880	Slot8 - P1 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9880	4698h	0	1
P9881	Slot8 - P2 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9881	4699h	0	1
P9882	Slot8 - P3 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9882	469Ah	0	1
P9883	Slot8 - P4 - Operation Mode	0 = Starter 1 = Transparent	0	rw, 8bit	0	9883	469Bh	0	1
P9885	Slot8 - P1 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9885	469Dh	0	1
P9886	Slot8 - P2 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9886	469Eh	0	1
P9887	Slot8 - P3 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9887	469Fh	0	1
P9888	Slot8 - P4 - Contactor Timeout	20 to 5000 ms	500 ms	rw, 16bit	0	9888	46A0h	0	1
P9803	Slot8 - Factory Reset	0 to 65535	0	rw, 16bit	0	9803	464Bh	0	1
Slot 8 - Starter manager (SCW) - Configurations - Counters									
P9850	Slot8 - Saves Operation Counters to the NV memory	0 to 1	0	rw, 8bit	0	9850	467Ah	0	1
P9851	Slot8 - Resets P1 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9851	467Bh	0	1
P9852	Slot8 - Resets P1 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9852	467Ch	0	1
P9853	Slot8 - Resets P2 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9853	467Dh	0	1
P9854	Slot8 - Resets P2 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9854	467Eh	0	1
P9855	Slot8 - Resets P3 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9855	467Fh	0	1
P9856	Slot8 - Resets P3 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9856	4680h	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
P9857	Slot8 - Resets P4 C1 Operation Counter	0 to 65535	0	rw, 16bit	0	9857	4681h	0	1
P9858	Slot8 - Resets P4 C2 Operation Counter	0 to 65535	0	rw, 16bit	0	9858	4682h	0	1
Slot 8 - Starter manager (SCW) - Configurations - Commands									
P9890	Slot8 - Forward Starter Command	Bit 0 = Starter 1 - forward Bit 1 = Starter 2 - forward Bit 2 = Starter 3 - forward Bit 3 = Starter 4 - forward	0	rw, 16bit	0	9890	46A2h	0	1
P9891	Slot8 - Reverse Starter Command	Bit 0 = Starter 1 - reverse Bit 1 = Starter 2 - reverse Bit 2 = Starter 3 - reverse Bit 3 = Starter 4 - reverse	0	rw, 16bit	0	9891	46A3h	0	1
P9892	Slot8 - Stop Command	Bit 0 = Starter 1 - turn off Bit 1 = Starter 2 - turn off Bit 2 = Starter 3 - turn off Bit 3 = Starter 4 - turn off	0	rw, 16bit	0	9892	46A4h	0	1
P1802	Slot 8 - Digital Outputs (DOs)	Bit 0 = DO01 Bit 1 = DO02 Bit 2 = DO03 Bit 3 = DO04 Bit 4 = DO05 Bit 5 = DO06 Bit 6 = DO07 Bit 7 = DO08 Bit 8 = DO09 Bit 9 = DO10 Bit 10 = DO11 Bit 11 = DO12 Bit 12 = DO13 Bit 13 = DO14 Bit 14 = DO15 Bit 15 = DO16 Bit 16 = DO17	0	rw, 32bit	0	1802	270Ah	0	1

Parameter	Description	Range of values	Factory setting	Properties	Decimal Places	Communication Address	CANopen Index	Sub-Index	PDO Mapping
		Bit 17 = DO18 Bit 18 = DO19 Bit 19 = DO20 Bit 20 = DO21 Bit 21 = DO22 Bit 22 = DO23 Bit 23 = DO24							

Table A.3: *Description of the parameter data types*

Data Type	Description
enum	Enumerated type (unsigned 8-bit) contains a list of values with function description for each item.
8bit	Unsigned 8-bit integer, ranges from 0 to 255.
s8bit	Signed 8-bit integer, ranges from -128 to 127.
16bit	Unsigned 16-bit integer, ranges from 0 to 65,535.
s16bit	Signed 16-bit integer, ranges from -32,768 to 32,767.
32bit	Unsigned 32-bit integer, ranges from 0 to 4,294,967,295.
s32bit	Signed 32-bit integer, ranges from -2,147,483,648 to 2,147,483,647.
16bit	Unsigned 16-bit integer, ranges from 0 to 65,535.
ip addr	Unsigned 32-bit integer representing the octets of the IP address.
mac addr	48-bit identifier displayed in XX:XX:XX:XX:XX:XX format.
date and time epoch	Displays the date and time value in Epoch format, which are the seconds counted from January 1, 1970 at 00:00:00.

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