



Operating instructions
ecomatRelay
CR3025

GB

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1 Preliminary note

You will find instructions, technical data, approvals, accessories and further information using the QR code on the device / packaging or at documentation.ifm.com.

1.1 Symbols used

- ✓ Requirement
- Instructions
- ▷ Reaction, result
- [...] Designation of keys, buttons or indications
- Cross-reference
-  Important note
Non-compliance may result in malfunction or interference.
-  Information
Supplementary note

1.2 Warnings

Warnings indicate the possibility of personal injury and damage to property. This enables safe product handling. Warnings are graded as follows:



WARNING

Warning of serious personal injury

▷ If the warning is not observed, fatal and serious injuries are possible.



CAUTION

Warning of minor to moderate personal injury

▷ If the warning is not observed, minor to moderate injuries are possible.

ATTENTION

Warning of damage to property

▷ If the warning is not observed, damage to property is possible.

2 Safety instructions

- The unit described is a subcomponent for integration into a system.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ Intended use).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the product or incorrect use by the operator.
- Installation, electrical connection, set-up, programming, configuration, operation and maintenance of the product must be carried out by personnel qualified and authorised for the respective activity.
- Protect units and cables against damage.
- Replace damaged units, otherwise the technical data and safety will be impaired.
- Observe applicable documents.
- Store the device in its original packaging.
- When the device is to be stored again, preferably use the original packaging.
- Otherwise, provide unused connections with either a mating connector or a protective cap and pack the device in suitable packaging.
- When storing, observe the device's protection rating / pollution degree (→ Technical data).

ATTENTION

Excessive current, weld slag and soiling due to welding

- ▷ Damage to the device, deterioration of the electrical safety
- ▶ Welding work on the chassis frame must only be carried out by qualified personnel.
- ▶ Remove and cover the plus and minus terminals of the batteries.
- ▶ Disconnect all contacts of the device from the on-board system prior to welding on the vehicle or machine.
- ▶ Connect the earth terminal of the welding device directly to the part to be welded.
- ▶ Do not touch the device or electric cables with the welding electrode or the earth terminal of the welding device.
- ▶ Protect the device incl. all connectors and all connection cables against weld slag and soiling.

3 Intended use

The device is designed for use in harsh conditions: This includes an extended temperature range, strong vibration, intensive EMC interferences and wet environments.

By means of the application software the user can configure the inputs and outputs to adapt to the respective application. The device can be used as a CANopen device: → Technical data.



The unit is not approved for safety-related tasks in the field of operator protection.

► Use the device only within the limits of the technical data (→ Technical data).



By default, the device is not intended for direct connection to IT systems. If this application is required, the user has to implement it (e.g. by using their own additional components).

4 Operating principle

The device is an H-bridge with integrated current measurement. It can be controlled via a PWM signal.

- 3 analogue / digital inputs (0...32 V DC)
- 1 CAN interface



Information about available accessories at documentation.ifm.com.

5 Installation

5.1 Mounting accessories

The device is supplied without mounting accessories.

The following mounting accessories are available:

- EC3025 (plug-in base, IP67)



Information about available accessories at documentation.ifm.com.

5.2 Installation location

The following installation locations are permitted:

- Inside of the cabin
- Body
- Vehicle frame

Installation on the motor/engine is not permitted.

For non-mobile applications, the applicable directives are to be adhered to, taking into account the specified environmental conditions.

ATTENTION

Excessive current, weld slag and soiling due to welding

- ▷ Damage to the device, deterioration of the electrical safety
- ▶ Welding work on the chassis frame must only be carried out by qualified personnel.
- ▶ Remove and cover the plus and minus terminals of the batteries.
- ▶ Disconnect all contacts of the device from the on-board system prior to welding on the vehicle or machine.
- ▶ Connect the earth terminal of the welding device directly to the part to be welded.
- ▶ Do not touch the device or electric cables with the welding electrode or the earth terminal of the welding device.
- ▶ Protect the device incl. all connectors and all connection cables against weld slag and soiling.

5.3 Mounting surface



The device must be installed with the connectors facing downwards.



The housing must not be exposed to any torsional forces or mechanical stress.

- ▶ Use suitable compensating elements if there is no flat mounting surface available.
- ▶ During installation and replacing the device, ensure that the pollution degree is 2 or better. Pollution degree 2 is a light, common contamination which can become conductive through occasional condensation or hand perspiration (DIN EN 60664-1).

5.4 Fastening

- ▶ Screw the lower M5 fixing screw for the EC3025 plug-in base into a vertical mounting surface. Leave a 2 mm gap between the screw head and the mounting surface.
- ▶ Slide the EC3025 plug-in base onto the fixing screw from above.
- ▶ Fix the EC3025 plug-in base to the mounting surface at the top using an M5 screw. Tightening torque: 1.6...2 Nm
- ▶ Insert the sealing mat into the plug-in base.
- ▶ Insert the CR3025 device into the plug-in base.
- ▶ Hook the bracket onto the tab of the plug-in base.
- ▶ Insert the M4 nut included in the accessories into the plug-in base from below.
- ▶ Insert the M4 x 30 cylinder head bolt through the holes in the bracket and in the plug-in base and tighten with the M4 nut. Tightening torque: 1.6...2 Nm

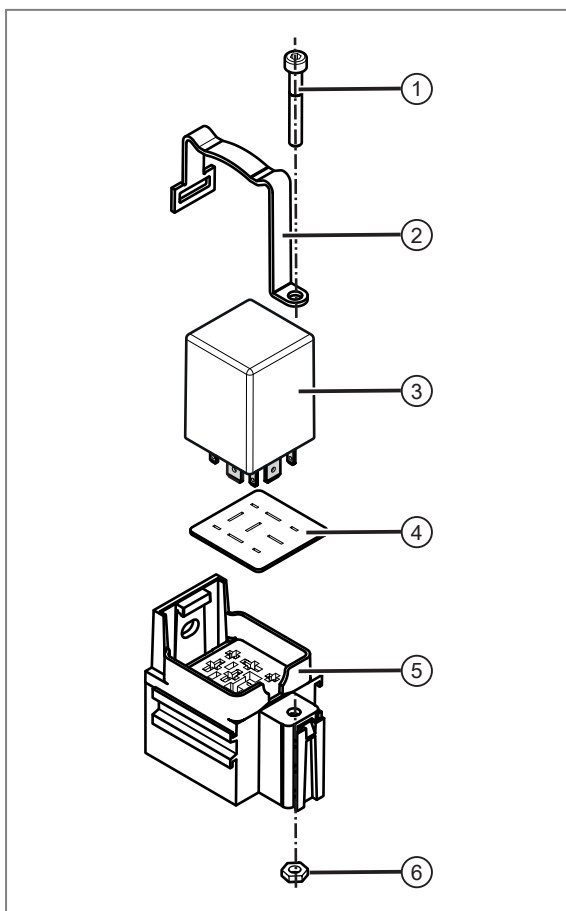


Fig. 1: Fastening CR3025 with plug-in base EC3025

- 1: M4 x 30 cylinder head bolt
- 2: Bracket
- 3: CR3025 device
- 4: Sealing mat
- 5: EC3025 plug-in base
- 6: M4 nut

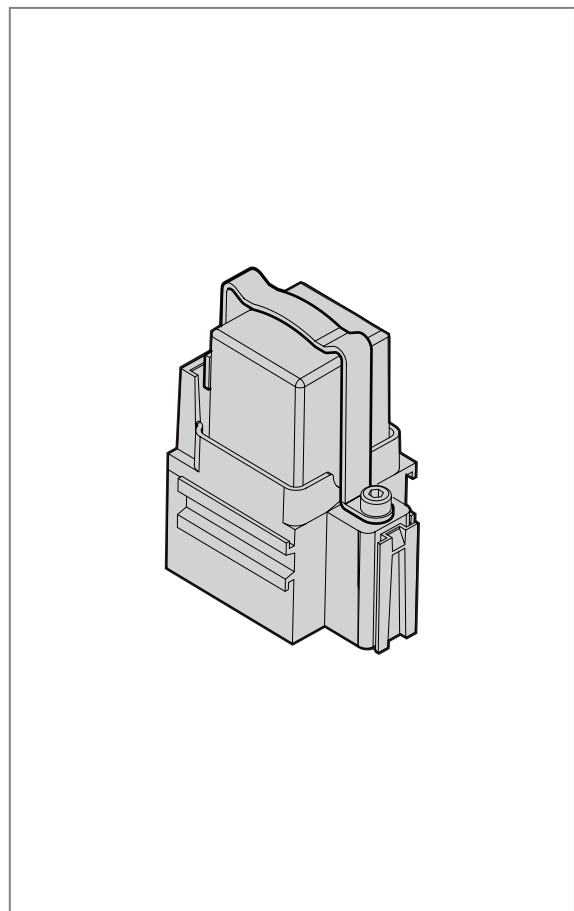


Fig. 2: Mounted device with plug-in base

6 Electrical connection



- ▶ Disconnect the machine from the mains supply before installation; if necessary, also disconnect any independently supplied input / output load circuits.
- ▶ Observe the national and international regulations for the installation of electrical equipment.
- ▶ Observe the requirements according to EN 60204.

The circuit is insulated from device surfaces that could be touched with basic insulation according to IEC 61010-1 (secondary circuit with max. 32 V DC, supplied from the mains circuit up to 300 V of overvoltage category II).

The external wiring has to be carried out in a way that ensures the required separation from other circuits.

6.1 Wiring

Wiring: Technical data: www.ifm.com



The terminals may only be supplied with the signals specified in the technical data or on the device label



The device is designed for supply via a mobile on-board system (12/24 V DC nominal voltage) or SELV/PELV according to the technical data and national regulations. The supply is directly transferred to the connected sensors/actuators without electrical separation.

ATTENTION

Reverse polarity protection is only ensured in case of supply via the on-board system (via a battery), if the polarity of the supply is reversed as a whole (battery connected incorrectly). The basic principle of the reverse polarity protection is that the upstream fuses are quickly switched off in case of excessive current. In case of supply via SELV/PELV, reverse polarity protection is not ensured from the power supply.

- ▷ Damage to the device possible
- ▶ Ensure that the ends of the cables are properly connected to the connector before connecting the latter to the device, also in case of supply via the on-board system.

6.2 Connection accessories

More information about available accessories at www.ifm.com

6.3 Connection technology



Observe all notes on connection technology.

- ▶ Note the device label.



Provide all connections with sealing of the individual cores to ensure protection rating IP67.



The ingress resistance of cables that users have cut to length must be guaranteed.

- ▶ Use twisted-pair cables for CAN connections.

The CAN bus is internally protected against short circuit to VBB and GND.



For CAN cables ≥ 30 m, ensure appropriate protection against surge (e. g. shielded cables).

6.4 General wiring information

Wiring of the connectors: Technical data: www.ifm.com

	Connection	Designation
	1	IN00
	2	VBB ₃₀
	3	IN01
	4	IN02
	5	OUT00
	6	GND
	7	CAN_H
	8	OUT01
	9	CAN_L

ATTENTION

Wrong connection may cause damage to the device.

- Observe the safety instructions.

- Basically lay all supply and signal cables separately.
- Lay supply and signal cables away from the device using the shortest possible route.
- Provide all outgoing cables with suitable strain relief after a maximum of 100 mm. Observe the minimum bending radius of the cables (→ information from the cable manufacturer).

6.5 Connection of the actuators to the outputs

The two outputs are connected to form a full H-bridge. The maximum load is 10 A.

6.6 Fuses

- The individual electric circuits must be protected in order to protect the whole system.

Designation		Operating voltage	Connector: pin	Nominal value fuse
VBB ₃₀	Supply sensors/module	8...32 V DC	AMP connector: pin 4	15 A



Protection against load dump and surge:

Load dump and surge protection is integrated into the device.

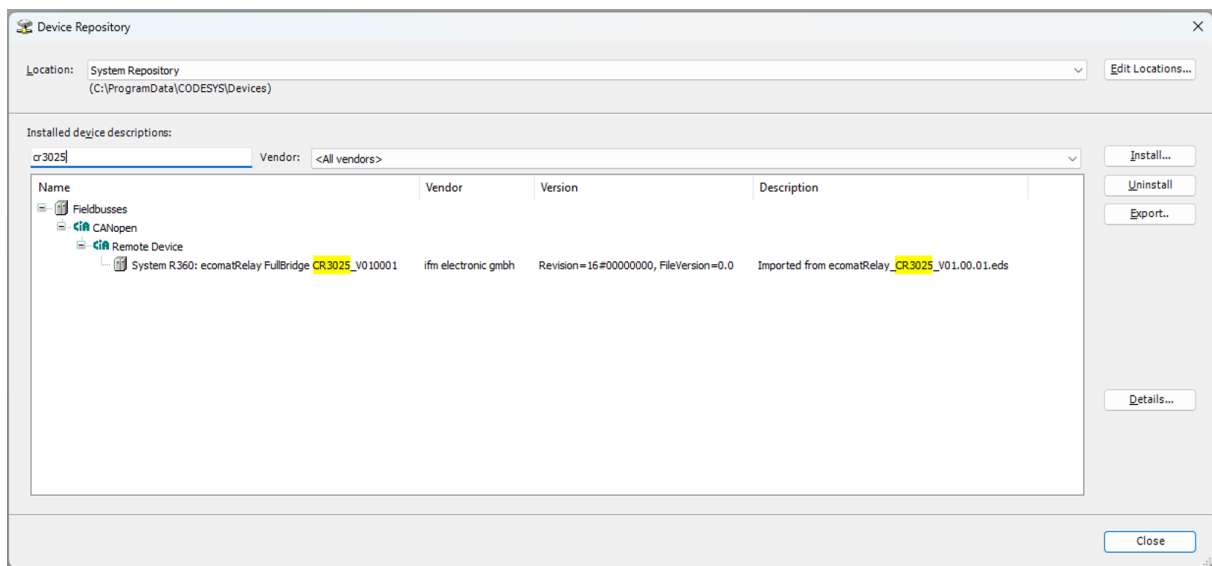
- When used for VBB₃₀:
For protection against load dump, use a 15 A fuse and cable with a cross-section of 1.5 mm².
- Use screened cables for the CAN connection.

7 Set-up in CODESYS 3.5

7.1 Installation of the device

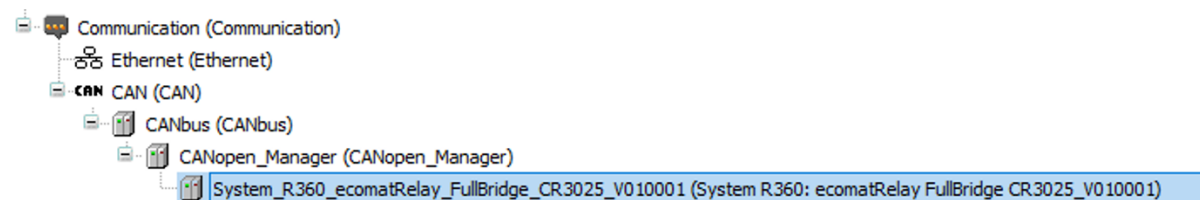
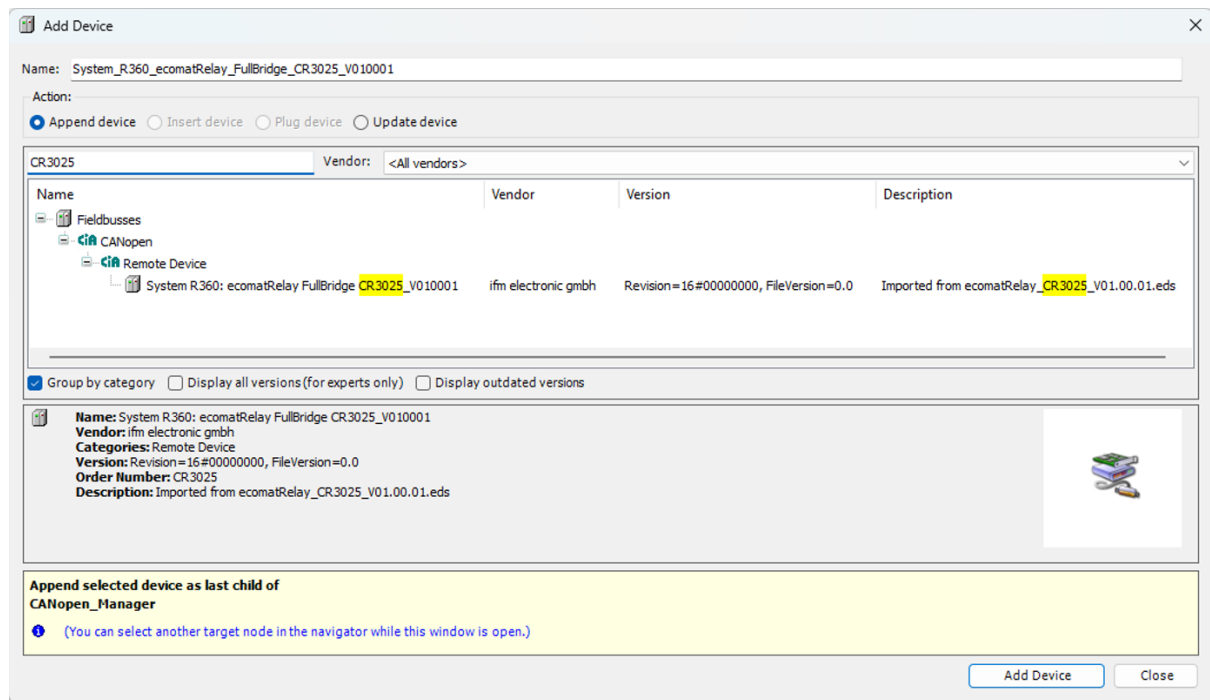
The “Electronic Data Sheet” (EDS) is installed in the [Device Repository]. Proceed as follows in the main menu:

- Click on [Tools] / [Device Repository] / [Install].
- Select EDS file and click on [Open].
- Select [Tools] / [Device Repository] / [Fieldbusses] / [CiA CANopen] / [CiA Remote Device]
OR
Enter CR3025 in the [Installed device descriptions] search field.



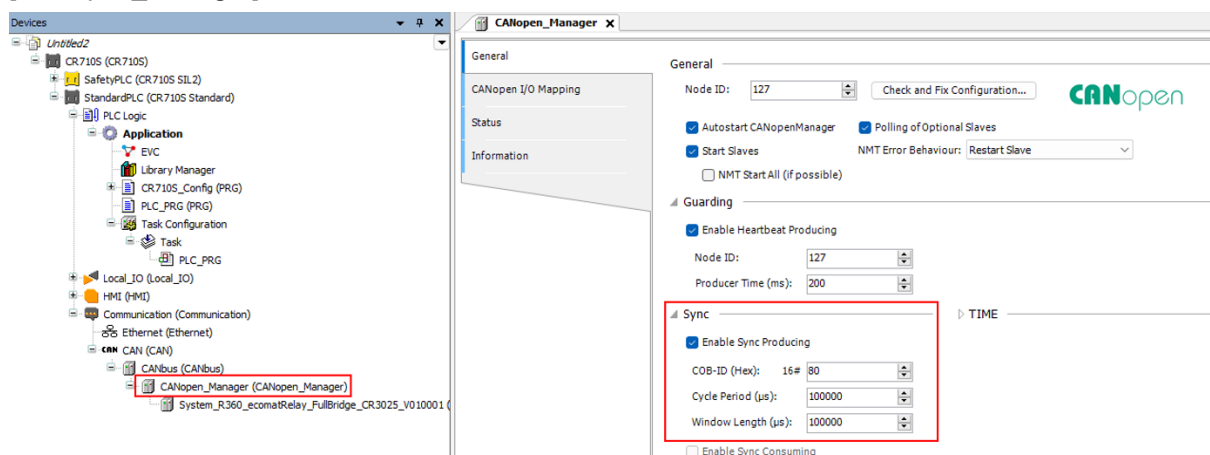
To be able to use the device in the IEC application, it must be added to the device tree. Proceed as follows in the device tree:

- Click on [Communication].
- Right-click on [CAN], then click on [Add Device...].
- Click on [Fieldbusses] / [CANopen] / [CANopen Manager].
- Click on [Add Device].
- Enter CR3025 in the search field and click on [Add Device].



7.2 Configuration of the device

As all PDOs are transmitted cyclically by default, it is necessary to activate “Sync Producing” under [CANopen_Manager]:

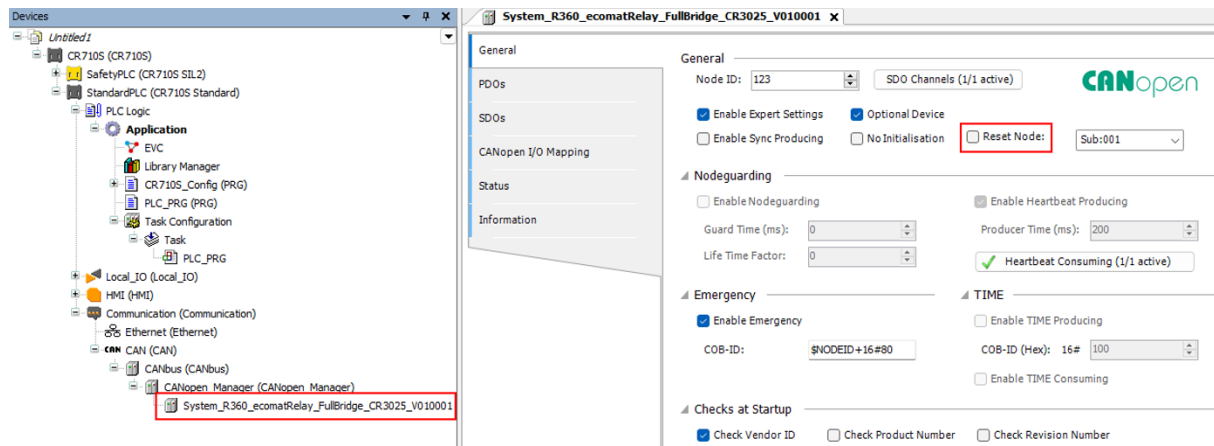


Parameter	Meaning
COB-ID (Hex) 16#80	Standard CANopen value for sync messages
Cycle Period (µs)	Time interval for the sync messages
Window Length (µs)	Time during which the sync data can be transferred

- Double-click on [System_R360_ecomatRelay_FullBridge_CR3025_V010001] / [General] / [Expert settings] to make advanced application-specific settings. In the factory setting, the CR3025 device can be found under the node ID 123.



► Deactivate the [Reset Node] function.



The behaviour of the device can be modified in the [SDOs] tab. Process variables that are labelled as configurable in the object directory can be assigned under [CANopen I/O Mapping]. (See appendix, labelling rw = read-write, w = write).



Use the CODESYS online help for further information.

8 Maintenance, repair and disposal

The unit is maintenance-free.

- ▶ The device must only be repaired by the manufacturer. Observe the safety instructions (→ 2 Safety instructions).



When the device is replaced, observe the pollution degree (→ Technical data), until the protection rating is ensured by means of connectors/dummy plugs. If necessary, clean the device/connector before the replacement. Check the seals of the connectors for reusability. The protection rating is only ensured for intact seals.

Cleaning the unit:

- ▶ Disconnect the unit from the voltage supply.
- ▶ Clean the unit from dirt using a soft, chemically untreated and dry micro-fibre cloth.

Disposal:

- ▶ After use, dispose of the unit in an environmentally friendly way in accordance with the applicable national regulations.

9 Appendix

9.1 EMCY Object

The following error codes according to DSP-401 or DSP-301 are supported:

EMCY code	Error reg	Additional code	Description
0x8000	0x11	0x00	Monitoring Sync Error. For communication cycle no sync object is received. Only in Operational. Reset with the next sync OBJ or PRE-OP
0x8100	0x11	0x00	Communication Error
0x8131	0x11	0x00	Monitoring Heart Beat Error. Reset with the next Heart beat or PRE-OP
0x63xx	0x01	0x00	Invalid parameter of an output configuration. "xx" is the number of output channel.
0x3308	0x05	0x00	Supply voltage Error (VBB30)
0x23xx	0x03	0x00	outputs, Overload > 2 seconds (>12A) "xx" is the number of output channel. Overload error: output current > 12 A for more than 2 seconds

9.2 Object directory

Obligatory objects (index 0x1000...0x1FFF):

Index	S-idx	Designation	Data type		Default	Details
0x1000		Device type	ro	UDINT	0x00070191	Device type
0x1001		Error register	ro	USINT	0	Error register bitcoded to profile 301
						Permissible values:
						0b0000 0000 = no error
						0b0000 0001 = generic error
						0b0000 0010 = current error
						0b0000 0100 = voltage error
						0b0000 1000 = temperature error
						0b0001 0000 = communication error
						0b0010 0000 = device profile specific
						0b1000 0000 = manufacturer specific
0x1003	0x00	Predefined error field	rw	UDINT	0	An error list with 7 entries is supported
		Number of entries				
	0x01	Error history	ro	UDINT	0	Error occurred, coded according to EMCY list
						The last error is indicated in the sub-index 1
	0x02	Error history	ro	UDINT	0	Error occurred, coded according to EMCY list
	0x03	Error history	ro	UDINT	0	Error occurred, coded according to EMCY list
	0x04	Error history	ro	UDINT	0	Error occurred, coded according to EMCY list
	0x05	Error history	ro	UDINT	0	Error occurred, coded according to EMCY list

Index	S-idx	Designation	Data type		Default	Details
0x1003	0x06	Error history	ro	UDINT	0	Error occurred, coded according to EM-CY list
	0x07	Error history	ro	UDINT	0	Error occurred, coded according to EM-CY list
0x1005		COB-ID sync message	rw	UDINT	0x0000 0080	Identifier of the sync message
						Bit 30 = 0 → device generates no sync message
						Bit 30 = 1 → device generates a sync message
						Bit 29 = 0 → 11 bit ID
						Bit 29 = 1 → ID = 0x80 + node ID
0x1006		Communication cycle period	rw	UDINT	0	Max. time between 2 sync objects in [µs]
						Control resolution = 1 ms
0x1008		Manufacturer device name	ro	STRING	xxxx	Device designation (CRxxxx)
0x1009		Manufacturer hardware version	ro	STRING	Vxx.yy.zz	Hardware version
0x100A		Manufacturer software version	ro	STRING	Vxx.yy.zz	Software version
0x1010	0x00	Store parameters	ro	USINT	0x01	Number of "save options"
		Largest sub-index supported				
	0x01	Save all parameters	rw	UDINT	2	Automatic saving of all parameters changed
						0 = AutoSave OFF 2 = AutoSave ON
0x1011	0x00	Restore default parameters	ro	USINT	0x01	Number of "restore options"
		Largest sub-index supported				
	0x01	Restore all default parameters	rw	UDINT	0x01	If the String "load" is entered here, the default parameters set at the factory are restored and become valid after the next reset.
0x1014		COB-ID Emergency	rw	UDINT	0x80 + node ID	Bit 31 = 0 → EMCY is valid
						Bit 31 = 1 → EMCY is not valid
						Bit 29 = 0 → 11-bit ID
						Bit 29 = 1 → ID = 0x80 + node ID
						CAN identifier can be changed by the user.
0x1015		Inhibit Time Emergency	rw	UDINT	100	Default 100ms
0x1016	0x00	Consumer heartbeat times	ro	USINT	0x01	Heartbeat monitoring time for the node
	0x01	Consumer heartbeat time	rw	UDINT	0	Heartbeat monitoring time for the node
						Format: 0x0nntttt
						nn = node number
						tttt = monitoring time [ms]
						if nn=0 or tttt=0 → no monitoring
0x1017		Producer heartbeat time	rw	UINT	0	Time interval [ms] during which the device generates a producer heartbeat

Index	S-idx	Designation	Data type		Default	Details
0x1018	0x00	Device identification Number of entries	ro	USINT	0x04	Device identification
	0x01	Vendor-ID	ro	UDINT	0x0069666D	Vendor ID of the device according to CiA specification (ifm electronic gmbh)
	0x02	Product code	ro	STRING	0	Product code of the device
	0x03	Revision number	ro	UDINT	0	Revision number of the device
	0x04	Serial number	ro	UDINT	0	Serial number of the device real serial number of the dedicated device

9.2.1 Device-specific

Receive PDO communication parameters (index 0x1400...0x14FF):

Index	S-idx	Designation	Data type		Default	Details
0x1400	0x00	Receive PDO Communication Parameter Number of entries	ro	USINT	0x02	Receive PDO 1: binary outputs 0 - 7
						number of entries = 2
	0x01	COB-ID used by PDO	rw	UDINT	0x200 + node ID	CAN ID of the first read PDO
						Bit 31 = 0 → PDO is valid
						Bit 31 = 1 → PDO is not valid
	0x02	transmission type	rw	USINT	0x01	0x00 = sync acyclic
						0x01...0xF0 = sync cyclic; outputs are only updated after „n“ sync objects
						n = 1...240 = 0x01...0xF0
						0xFC/0xFD not implemented
						0xFE = async man. spec. event;
						outputs are updated immediately
						0xFF = async device profile event;
						outputs are updated immediately

Transmit PDO mapping (index 0x1A00...0x1AFF):

Index	S-idx	Designation	Data type		Default	Details
0x1600	0x00	Transmit PDO mapping	rw	USINT	0x03	mapping receive PDO 1
		Number of mapped objects in PDO				number of integrated application objects = 3
	0x01	PDO mapping	rw	UINT	0x6200 0110	Index 0x6200, SubIndex 0x01, 16 Bit
						Signal: Duty Cycle 0 .. 1000 ‰
	0x02	PDO mapping	rw	USINT	0x6200 0208	Index 0x6200, SubIndex 0x02, 8 Bit
						Signal: Direction
						0 = M1 +, M2 - 1 = M1 -, M2 +
	0x03	PDO mapping	rw	UINT	0x6200 03010	Index 0x6200, SubIndex 0x03, 10 Bit
						Signal: Frequency
						Output PWM frequency 0..25500 [Hz]

Transmit PDO communication parameters (index 0x1800...0x18FF):

Index	S-idx	Designation	Data type		Default	Details
0x1800	0x00	Transmit PDO Communication Parameter	ro	USINT	0x05	Configuration transmit PDO 1
		Number of entries				number of entries = 5
	0x01	COB-ID used by PDO	Rw	UDINT	0x180 + Node ID	CAN ID of the transmit PDO 1
						Bit 31 = 0 → PDO is valid
						Bit 31 = 1 → PDO is not valid
	0x02	transmission type	rw	USINT	0x01	0x00 = sync acyclic
						0x01...0xF0 = sync cyclic; values are only transmitted after „n“ sync objects
						n = 1...240 = 0x01...0xF0
						0xFC/0xFD not implemented
						0xFE = async man. spec. event;
						values are immediately transferred
						0xFF = async device profile event;
						values are immediately transferred
	0x03	inhibit time	rw	UINT	0	delay time in the transmission type "async" before the PDO is transmitted again at the earliest. (0...65535 • 100 µs)
	0x04	reserved	rw	USINT	0	reserve
	0x05	event time	rw	UINT	0	max. transfer break in the transmission type „async“ (0...65535 ms)
						When this time has elapsed, the PDO is transferred even if the appl. event has not accured.
0x1801	0x00	Transmit PDO Communication Parameter	ro	USINT	0x05	Configuration transmit PDO 2
		Number of entries				number of entries = 5
	0x01	COB-ID used by PDO	rw	UDINT	0x280 + Node ID	CAN ID of the transmit PDO 2
						Bit 31 = 0 → PDO is valid
						Bit 31 = 1 → PDO is not valid
	0x02	transmission type	rw	USINT	0x01	0x00 = sync acyclic
						0x01...0xF0 = sync cyclic; values are only transmitted after „n“ sync objects
						n = 1...240 = 0x01...0xF0
						0xFC/0xFD not implemented
						0xFE = async man. spec. event;
						values are immediately transferred
						0xFF = async device profile event;
						values are immediately transferred
	0x03	inhibit time	rw	UINT	0	delay time in the transmission type "async" before the PDO is transmitted again at the earliest. (0...65535 • 100 µs)
	0x04	reserved	rw	USINT	0	reserve
	0x05	event time	rw	UINT	0	max. transfer break in the transmission type „async“ (0...65535 ms)
						When this time has elapsed, the PDO is transferred even if the appl. event has not accured.

Transmit PDO mapping (index 0x1A00...0x1AFF):

Index	S-idx	Designation	Data type		Default	Details
0x1A00	0x00	Transmit PDO mapping	rw	USINT	0x01	mapping transmit PDO 1
		Number of mapped objects in PDO				number of integrated application objects = 1
	0x01	PDO mapping	rw	USINT	0x6000 0108	Index 0x6401, SubIndex 0x01, 8 Bit
						digital inputs IN00..IN02: actual values (bit coded, BIT0 = IN00, BIT1 = IN01, BIT2 = IN02)
0x1A01	0x00	Transmit PDO mapping	rw	USINT	0x03	mapping transmit PDO 2
		Number of mapped objects in PDO				number of integrated application objects = 3
	0x01	PDO mapping	rw	UINT	0x6401 0110	Index 0x6401, SubIndex 0x01, 16 Bit
						Signal IN00, Analog Input 0..32V, Pin 1
						Scale: [mV]
	0x02	PDO mapping	rw	UINT	0x6401 0210	Index 0x6401, SubIndex 0x02, 16 Bit
						Signal IN01, Analog Input 0..32V, Pin 3
						Scale: [mV]
	0x03	PDO mapping	rw	UINT	0x6401 0310	Index 0x6401, SubIndex 0x03, 16 Bit
						Signal IN02, Analog Input 0..32V, Pin 4
						Scale: [mV]
0x1A02	0x00	Transmit PDO mapping	rw	USINT	0x02	mapping transmit PDO 3
		Number of mapped objects in PDO				number of integrated application objects = 2
	0x01	PDO mapping	rw	UINT	0x6401 0410	Index 0x6401, SubIndex 0x04, 16 Bit
						Signal VBB30, 0..32V, Pin 2
						Scale: [mV]
	0x02	PDO mapping	rw	UINT	0x6401 0510	Index 0x6401, SubIndex 0x06, 16 Bit

Manufacturer-specific objects (index 0x2000...0x2FFF):

Index	S-idx	Designation	Data type		Default	Details
0x2002		Heartbeat Lost Action	rw	USINT	1	Setting:
						0: No change
						1: Motor output OFF
						2: Motor output ON 100% (in current direction)
0x20F0		Node ID	rw	USINT	123	1...125 node ID
0x20F2		Baudrate	rw	UDINT	250	Undefined Baudrates: ignore the baud rate and stay in the last valid one.
						0 1000 kBit/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

Index	S-idx	Designation	Data type		Default	Details	
0x20F2		Baudrate	rw	UDINT	250	7	20 kBit/s
						≥10	= Value in kBit/s
							Only supported baud rates are considered valid; otherwise, the current baud rate remains unchanged.
0x20F4		Autostart	rw	UINT	0	not used	
0x20F5	0	Sleep Mode	rw	USINT	0	0 Sleepmode inactive	
						> 0 in seconds (no CAN-Message on Bus)	

Manufacturer-specific objects (index 0x6000...0x6FFF):

Index	S-idx	Designation	Data type		Default	Details	
0x6000	0x00	Output Lines	ro	USINT	0x01		
	0x01	Digital Inputs	rw	USINT	0x00	digital inputs IN00..IN02: actual values	
						(bit coded)	
0x6200	0x01	Duty Cycle	rw	UINT	0x0000	Digital Inputs - switching thresholds 30% Low, 70% High of VBB30	
	0x02	Direction	rw	USINT	0x00	Duty Cycle	
						0..1000 ‰	
						Direction:	
	0x03	Frequency	rw	UINT	0x64	0 = M1 +, M2 -	
						1 = M1 -, M2 +	
	0x04	Motor Check	rw	USINT		Frequency	
						Output PWM frequency	
						Range 0..25500 [Hz]	
0x6401	0x00	Output Lines	ro	USINT	0x06		
	0x01	Duty Cycle	rw	UINT	0x0000		
	0x02	Direction	rw	USINT	0x00		
	0x03	Frequency	rw	UINT	0x64		
	0x04	Motor Check	rw	USINT			
	0x05	Ramp Up	rw	USINT			
	0x06	Ramp Down	rw	USINT			
0x6401	0x00	Analog Inputs	ro	UINT	0x06		
	0x01	IN00	ro	UINT	0x00	Analog input IN00	
	0x02	IN01	ro	UINT	0x00	Analog input IN01	
	0x03	IN02		UINT	0x00	Analog input IN02	
	0x04	VBB30		UINT	0x00	VBB30, power supply	
	0x05	-		UINT	0x00	not available	
	0x05	Out Current		UINT	0x00	Out / motor current [mA]	