

Commissioning of EZ motors on Bosch Rexroth drive controllers Information

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1 Overview

This document contains information about the **Bosch Rexroth IndraDrive C/Cs** feature that is offered in the configuration of STOBER motors when selecting the drive controller type. This feature affects the connection and parameterization of STOBER synchronous servo motors to drive controllers of the Bosch Rexroth IndraDrive C/Cs series.

STOBER motor designs with the previously named features are available and can be delivered.

STOBER has taken the following measures to minimize the effort of commissioning STOBER motors connected to IndraDrive C/Cs drive controllers and avoid errors during parameterization:

- The commutation offset of the motor was set so that calibration by the customer is not necessary.
- Parameter lists are provided on request.

Brand names

IndraDrive®	IndraDrive® is a registered trademark of Bosch Rexroth AG, Lohr, Germany.
IndraWorks®	IndraWorks® is a registered trademark of Bosch Rexroth AG, Lohr, Germany.

2 Bosch Rexroth drive controllers

Supported series

This document refers to Bosch Rexroth drive controllers of the IndraDrive C/Cs series.

Parameterization

Automatic parameterization of STOBBER motors to IndraDrive C/Cs drive controllers is not possible. STOBBER provides parameter lists in PDF format on request, however. More information can be found in the chapter Parameterizing the motor.

Connection cables

speedtec plug connectors from TE Connectivity are installed in STOBBER motors. Since these plug connectors are not compatible with original Bosch Rexroth cables, STOBBER offers corresponding power and encoder cables.

3 STOBER motors

Supported motor series

The STOBER EZ motor series can be parameterized to IndraDrive C/Cs drive controllers. Other STOBER motor series on request.

Electronic nameplate

When connecting STOBER motors to IndraDrive C/Cs, the electronic nameplate is not used. Only the commutation offset is stored in the encoder memory so that it can be read out by the drive controller.

Temperature sensor

As standard, PTC or PT1000 temperature sensors are installed in Bosch Rexroth motors, depending on the series. STOBER offers the same temperature sensors. The temperature sensor connections are routed via the power plug connector.

3.1 Encoders

Encoders with EnDat 2.1 interface

Encoder model	Code	Measuring method	Recordable revolutions	Resolution	Position values per revolution	Periods per revolution	MTTF [years]	PHF [h]
EnDat 2.1 EQN 1125 FMA	M2	Optical	4096	13 bit	8192	Sin/cos 512	> 57	$\leq 2 \times 10^{-6}$
EnDat 2.1 EQN 1125	Q4	Optical	4096	13 bit	8192	Sin/cos 512	> 57	$\leq 2 \times 10^{-6}$
EnDat 2.1 ECN 1113 FMA	M0	Optical	–	13 bit	8192	Sin/cos 512	> 57	$\leq 2 \times 10^{-6}$
EnDat 2.1 ECN 1113	C6	Optical	–	13 bit	8192	Sin/cos 512	> 57	$\leq 2 \times 10^{-6}$

Notes

- The encoder code is a part of the type designation of the motor.
- FMA = Version with fault exclusion for mechanical coupling.
- Multiple revolutions of the motor shaft can be recorded only using multi-turn encoders.

3.2 Possible combinations with drive controllers

The following table shows the possible combinations of STOBER synchronous servo motors with drive controllers from Bosch Rexroth depending on the encoder model.

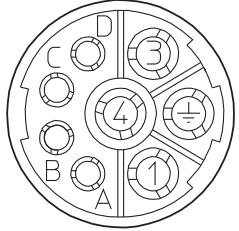

Drive controller		IndraDrive C/Cs
Drive controller code		FW
DC link voltage U_{2k}		540 V
Connection plan ID		442445
Encoder	Encoder code	
EnDat 2.1 EQN 1125 FMA	M2	EZ
EnDat 2.1 EQN 1125	Q4	EZ
EnDat 2.1 ECN 1113 FMA	M0	EZ
EnDat 2.1 ECN 1113	C6	EZ

The encoder and drive controller codes are a part of the type designation of the motor.

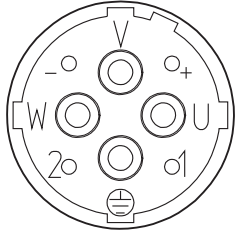

3.3 Connection assignment of the power plug connector

The size and connection plan of the power plug connector depend on the size of the motor. The colors of the connecting wires inside the motor are specified in accordance with IEC 60757.

Plug connector size con.23

Connection diagram	Pin	Connection	Color
	1	U phase	BK
	3	V phase	BU
	4	W phase	RD
	A	Brake +	RD
	B	Brake -	BK
	C	Temperature sensor +	
	D	Temperature sensor -	
		Grounding conductor	GNYE

Plug connector size con.40 (1.5)

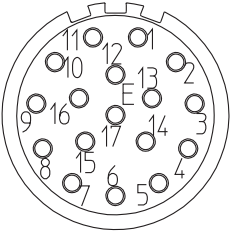
Connection diagram	Pin	Connection	Color
	U	U phase	BK
	V	V phase	BU
	W	W phase	RD
	+	Brake +	RD
	-	Brake -	BK
	1	Temperature sensor +	
	2	Temperature sensor -	
		Grounding conductor	GNYE

3.4 Connection assignment of the encoder plug connector

The size and connection assignment of the encoder plug connectors depend on the model of encoder installed and the size of the motor. The colors of the connecting wires inside the motor are specified in accordance with IEC 60757.

EnDat 2.1 encoder with sin/cos incremental signals, plug connector size con.23

This connection assignment only applies to the IndraDrive C/Cs drive controller.

Connection diagram	Pin	Connection	Color
	1	Up sense	BU
	2		
	3		
	4	0 V sense	WH
	5		
	6		
	7	Up +	BNGN
	8	Clock +	VT
	9	Clock -	YE
	10	0 V GND	WHGN
	11		
	12	B + (Sin +)	BUBK
	13	B - (Sin -)	RDBK
	14	Data +	GY
	15	A + (Cos +)	GNBK
	16	A - (Cos -)	YEBK
	17	Data -	PK

4 Parameterizing the motor

Prerequisites

Before parameterizing the motor, make sure that the following prerequisites are present or have been met:

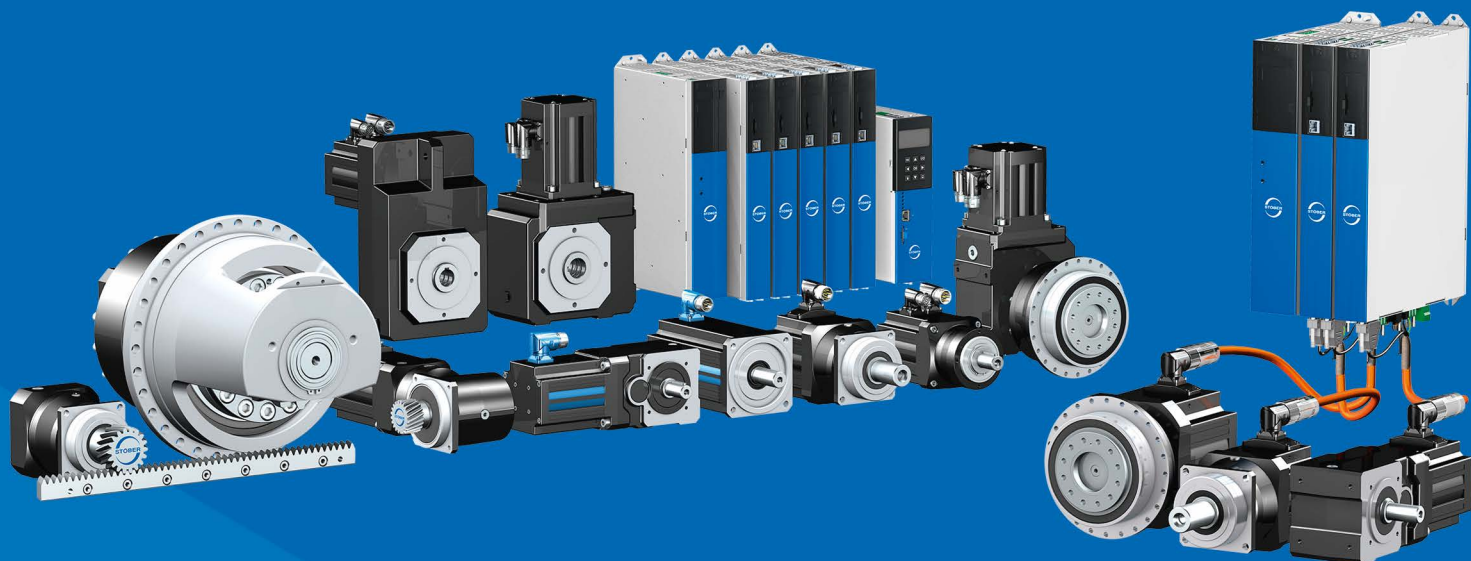
- PC with Bosch Rexroth IndraWorks software
- Mechanical installation of the EZ motor in the machine is completed
- Electrical connection of the EZ motor to the IndraDrive C/Cs drive controller is complete

Parameterize the STOBBER motor using IndraWorks. The necessary parameter values can be obtained from STOBBER in list form.

The correct commutation offset is already stored in the motor encoder.

Further information on commissioning can be found in the technical documentation of Bosch Rexroth IndraWorks, the drive controller and motor.

The technical documentation of a STOBBER motor can be found by entering the motor's serial number under <https://id.stober.com> or scanning the QR code on the motor's nameplate.



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