18.5   Connection to Bosch Rexroth drive controllers

This chapter contains the information for connecting STOBER synchronous servo motors to drive controllers of the above-named manufacturer which differs from connecting to STOBER drive controllers. You can find all other information about STOBER synchronous servo motors in the respective chapter of this catalog.

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.

18.5.1   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.

18.5.2   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_{ZK}		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.

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18.5.3   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)
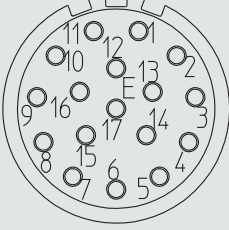
Connection diagram	Pin	Connection	Color
	U	U phase	BK
	V	V phase	BU
	W	W phase	RD
	+	Brake +	RD
	−	Brake −	BK
	1	Temperature sensor +	
	2	Temperature sensor −	
	⏚	Grounding conductor	GNYE

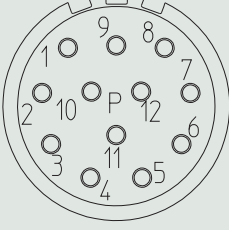## 18.5.4   Connection assignment of the encoder plug connector

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

Hiperface encoder, plug connector size con.23

Connection diagram	Pin	Connection	Color
	1	Us	RD
	2	0 V GND	BU
	3	REFSIN	BN
	4	REFCOS	BK
	5	Data +	GY
	6	Data −	GN
	7	+ SIN	WH
	8	+ COS	PK
	9		
	10		
	11		
	12		

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