Commissioning of STOBER geared motors on Allen-Bradley drive controllers
Information

STOBER

1   Overview

This document contains information about the **Allen Bradley Kinetix 5500/5700/6500** 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 Allen-Bradley Kinetix 5500/5700/6500 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 Allen-Bradley drive controllers and avoid errors during parameterization:

- The commutation offset of the motor was set so that calibration by the customer is not necessary.

- The electronic nameplate of the motor was designed to be compatible with the Kinetix 5500/5700/6500.

- STOBER tests the motor connected to Allen-Bradley drive controllers before delivery to the customer.

- Configuration files for supported motor versions are available for download.

Brand names

ALLEN-BRADLEY®	ALLEN-BRADLEY® is a registered trademark of Rockwell Automation, Inc., Milwaukee, Wisconsin, US
KINETIX®	KINETIX® is a registered trademark of Rockwell Automation, Inc., Milwaukee, Wisconsin, US
STUDIO 5000®	STUDIO 5000® is a registered trademark of Rockwell Automation, Inc., Milwaukee, Wisconsin, US

2 Allen-Bradley drive controllers

Supported series

This document refers to Allen-Bradley drive controllers of the Kinetix 5500/5700/6500 series.

Automatic parameterization

The automatic parameterization of a STOBER motor to an Allen-Bradley drive controller is performed with the help of the Studio 5000 software. In the software, the STOBER motor can be selected from a catalog and then commissioned like an original motor from Allen-Bradley. Detailed information on the parameterization can be found in the chapter Parameterizing the motor [▶ 8].

Connection cables

The plug connectors and terminal assignment of STOBER motors are designed so that the customer can obtain and connect the corresponding original cables from Allen-Bradley. STOBER does not offer any connection cables for Allen-Bradley drive controllers, but can recommend an appropriate cable family on request.

3 STOBER motors

Supported series

The STOBER EZ geared motors can be parameterized to Kinetix 5500/5700/6500 drive controllers fully automatically. EZ motors without an attached gear unit and other STOBER series are excluded.

Electronic nameplate

The electronic nameplate is stored in the encoder memory of STOBER motors. It is written in a format that Allen-Bradley drive controllers can recognize and read out.

Temperature sensor

In Allen-Bradley motors, NTC temperature sensors are installed as standard. STOBER uses PTC or Pt1000 temperature sensors. Therefore, overheat protection must be implemented in the Allen-Bradley drive controller using the i2t model. The temperature sensor connections are routed via the encoder plug connector. For connections using a shared plug connector (OCS), the temperature is transmitted digitally over data lines so that temperature sensor connections are not routed via the connection cable.

The terminal assignment for plug connectors of STOBER motors in the designs listed above is identical to Allen-Bradley motors.

3.1 Encoders

Encoders with EnDat 2.2 interface

Encoder model	Code	Measuring method	Recordable revolutions	Resolution	Position values per revolution	MTTF [years]	PHF [h]
EnDat 2.2 EQN 1135	Q5	Optical	4096	23 bit	8388608	> 100	$\leq 15 \times 10^{-9}$

Encoders with HIPERFACE interface

Encoder model	Code	Measuring method	Recordable revolutions	Resolution	Position values per revolution	MTTF [years]	PHF [h]
EDM35	H6	Optical	4096	20 bit	1048576	> 100	$\leq 31 \times 10^{-9}$

Notes

- The encoder code is a part of the type designation of the motor.

- 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 motors and geared motors with drive controllers from Allen-Bradley depending on the encoder model.
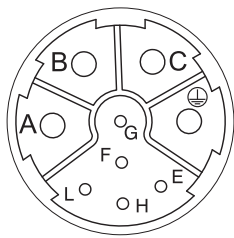
Drive controller		KINETIX 5500 (with HIPERFACE DSL)	KINETIX 5700 (with HIPERFACE DSL)	KINETIX 5700 (with EnDat 2.2)	KINETIX 6500 (with EnDat 2.2)
Drive controller code		HB	GD	HA	GC
Connection plan ID		443169	442449	443096	442448
Encoder	Encoder code				
EnDat 2.2 EQN 1135	Q5	–	–	EZ	EZ
EDM35	H6	EZ	EZ	–	–

The encoder and drive controller codes are a part of the type designation of the motor.
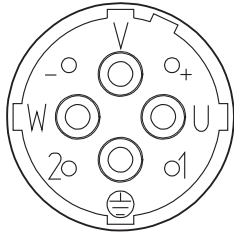
3.3   Terminal assignment of the power plug connector

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
	A	1U1 (U phase)	BK
	B	1V1 (V phase)	RD
	C	1W1 (W phase)	BU
	F	MBRK + (1BD1)	RD
	G	MBRK − (1BD2)	BK
	E		
	H		
	L		
	⏚	PE (grounding conductor)	GNYE

Plug connector size con.40 (1.5)

Connection diagram	Pin	Connection	Color
	U	1U1 (U phase)	BK
	V	1V1 (V phase)	BU
	W	1W1 (W phase)	RD
	+	MBRK + (1BD1)	RD
	−	MBRK − (1BD2)	BK
	1		
	2		
	⏚	PE (grounding conductor)	GNYE

3.4 Terminal assignment of the encoder plug connector

EnDat 2.2 digital encoder, plug connector size con.23

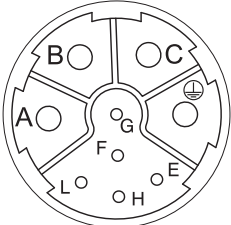| Connection diagram	Pin	Connection	Color
	1		
	2		
	3		
	4		
	5	DATA +	GY
	6	DATA −	PK
	7	CLK + (Clock +)	VT
	8	CLK − (Clock −)	YE
	9	EPWR_5V (Up +)	BNGN
	10	ECOM (0 V)	WHGN
	11		
	12		
	13	TS + (1TP1)	BK
	14	TS − (1TP2)	WH
	15		
	16		
	17		

3.5 Terminal assignment for plug connectors (One Cable Solution)

In the One Cable Solution design, the power and encoder lines are connected using a shared plug connector.
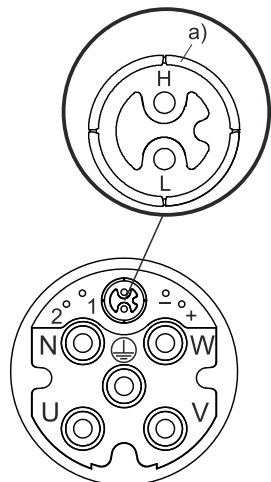
The size of the plug connector depends on the size of the motor.

The temperature sensor of the motor is connected to the encoder internally. The measured values from the temperature sensor are transmitted via the log of the encoder.

Plug connector size con.23

Connection diagram	Pin	Connection	Color
	A	1U1 (U phase)	BK
	B	1V1 (V phase)	BU
	C	1W1 (W phase)	RD
	E	DATA + (DSL +)	GY
	F	MBRK + (1BD1)	RD
	G	MBRK − (1BD2)	BK
	H	DATA − (DSL −)	GN
	L		
	⏚	PE (grounding conductor)	GNYE

Plug connector size con.40 (1.5)

Connection diagram	Pin	Connection	Color
	U	1U1 (U phase)	BK
	V	1V1 (V phase)	BU
	W	1W1 (W phase)	RD
	N		
	+		
	−		
	1	MBRK + (1BD1)	RD
	2	MBRK − (1BD2)	BK
	H	DATA − (DSL −)	GY
	L	DATA + (DSL +)	GN
	⏚	PE (grounding conductor)	GNYE
a) Coaxial shield to which the DSL shield is connected			

4 Parameterizing the motor

Prerequisites

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

- PC with **Studio 5000** software from Rockwell Automation and, if necessary, **CMF Import Tool**

- Mechanical installation of the motor in the machine is completed

- Electrical connection of the motor to the Allen-Bradley drive controller is completed

Select the corresponding STOBER motor type from the Studio 5000 catalog.

If STOBER motors are not available in the Studio 5000 catalog, import the corresponding configuration file using the CMF Import Tool. You can find the configuration file on the STOBER download page: https://www.stoeber.de/de/downloads/#/?downloadsType=&searchQuery=Allen-Bradley&isNew=false.

If your motor has an EnDat encoder, set the encoder model to UFB in Studio 5000.

After Studio 5000 has detected the motor, all motor parameters are set so that you can commission the STOBER motor like a motor from Allen-Bradley. Further information on commissioning can be found in the technical documentation of Studio 5000, the drive controller and motor.

The technical documentation of a STOBER 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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