18.7 Connection to Allen-Bradley 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.

The following STOBER series can be configured to Kinetix 5500/5700/6500 drive controllers fully automatically: EZ geared motors; EZHD, EZM, EZS motors. This does not include EZ motors without an attached gear unit and other STOBER series.

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.

18.7.1 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.

18.7.2 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.

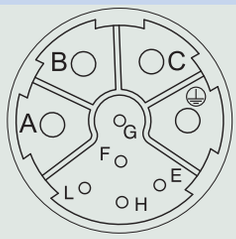
Drive controller		KINETIX 5500 (with HIPERFACE DSL)	KINETIX 5700 (with HIPERFACE DSL)	KINETIX 5700 (with EnDat 2.2)	KINETIX 6500 (with EnDat 2.2)
Drive controller code		HB	GD	HA	GC
Connection plan ID		443169	442449	443096	442448
Encoder	**Encoder code**				
EnDat 2.2 EQN 1135	Q5	–	–	EZ	EZ
EDM35	H6	EZ	EZ	–	–

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

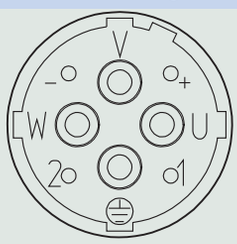
18.7.3 Terminal assignment of the power plug connector

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

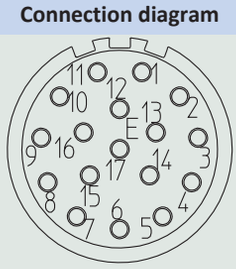
Connection diagram	Pin	Connection	Color
	A	1U1 (U phase)	BK
	B	1V1 (V phase)	RD
	C	1W1 (W phase)	BU
	F	MBRK + (1BD1)	RD
	G	MBRK – (1BD2)	BK
	E		
	H		
	L		
	⏚	PE (grounding conductor)	GNYE

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

18.7.4 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		

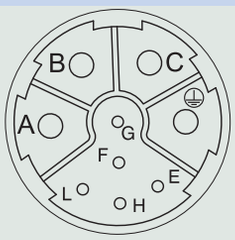
18.7.5 Terminal assignment for plug connectors (One Cable Solution)

In the One Cable Solution design, the power and encoder lines are connected using a shared plug connector.

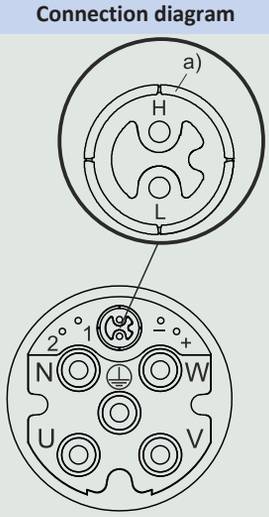
The size of the plug connector depends on the size of the motor.

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