SEW EURODRIVE

Revision

Synchronous Servomotors
CMP40 – CMP112, CMPZ71 – CMPZ100

Table of contents

1 Revision

INFORMATION

This revision describes the changes made to the addendum to the operating instructions "Synchronous Servomotors CMP...".

- Information on the KL and KLS terminal boxes for CMP112.. motors with core cross sections > 35 mm^2

- Chapter 2.2: "Nameplates on the servomotor": Adaption to new nameplates

- Additional chapter 5.4 "Brake controls with functional control input"

- New temperature sensor /PK

## 1.1 KL, KLS terminal boxes for CMP112.. motors with core cross sections > 35 mm²

1.1.1 Connection options

Designation	Option
/KL	Terminal box for CMP112, for connection cross sections > 35 mm², motor and encoder cables can be clamped
/KLS	Terminal box for CMP112, for connection cross sections > 35 mm², motor cable can be clamped, encoder cable can be plugged

1.1.2 Notes regarding the connection of the power and signal cables via the terminal box

Optionally, you can connect the power and signal cables via a terminal box.

- Option /KK, /KL: Connection of the power and signal cables via conductor end sleeves in the terminal box.

- Option /KKS, /KLS: Connection of the power cable via conductor end sleeves, and the signal cable via a plug connector.

CMP50 – CMP63
KK

CMP.71 – CMP.100, CMP112
KK
KKS

CMP112
KL
KLS
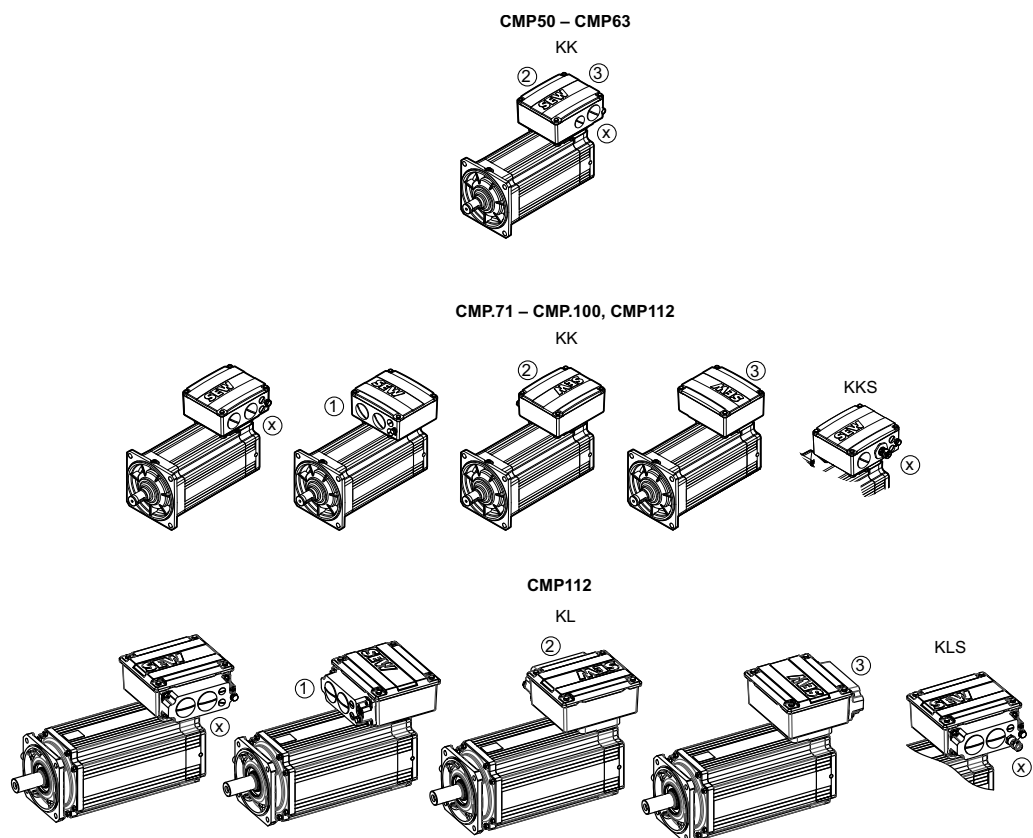
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The cable entry position is specified with x, 1, 2, 3.

For motor sizes CMP50 and 63 in a fixed mounting position "x", the cable entry is possible from three directions.

1.1.3   Connecting the motor and encoder system via KK, KKS, KL, and KLS terminal boxes

- Check the cable cross sections.
- Screw on the connections and PE conductors.
- Check the winding connections in the terminal box and tighten them, if necessary.
- You have to use an EMC cable gland for the signal cable entry in order to ensure a flawless shielding.

Connection cross section

Motor type	Power connection				Encoder / resolver / thermal motor protection	
	Terminal box	Connection	Maximum connection cross section	Cable entry	Connection	Cable entry
CMP50, CMP63	KK, KKS	Spring terminals	6 mm^2	M25	Spring terminals	M20
CMP.71, CMP.80		M6 stud	10 mm^2	M32		M16
CMP.100		M8 stud	25 mm^2	M40		
CMP112S/M/L[1]		M8 stud	35 mm^2 [2]	M50		
CMP112H/E		M10 stud	50 mm^2 [3]	M50		
CMP112	KL, KLS	M12 stud	50 mm^2	M50		

1) CMP112L with 4500 1/min contains M10 studs.

2) With a cable cross section of 35mm^2 and a cable entry position of X or 3, the connection of the cables in the terminal box may be more difficult due to the limited space. SEW-EURODRIVE recommends using the larger terminal box KL or KLS for easier installation.

3) For better cable routing you should use cables with 2 x 25 mm^2 if possible. For cable cross sections > 35 mm^2, SEW-EURODRIVE recommends using the larger terminal box KL or KLS.

Connecting CMP112

For information on cable connection in the terminal box, refer to chapter "Connecting CMP71 – CMP112" (→ 🖹 16).

1.2 Nameplates of CMP.. motors

1.2.1 1st nameplate of a CMP.. motor

The following figure shows an example of the first nameplate of a CMP.. motor:

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76646 Bruchsal / Germany   Jahr 2015

[1] CMPZ71M/BY/KY/RH1M/SB1		[1]
[2] 01.123456789.0001.15		[2]
[3] Mo 9.4 Nm	VTnC 0-3000 r/min	IM B5 [3]
[4] Mpk 30.8 Nm	n max 3000 r/min	IP 65 [4]
[5] Io 7.5 A	Up 256 V	kg 13.544 [5]
[6] Imax 39 A	Ta -20..40 °C	Th.Kl. (F) [6]
[7] Usys 400 V	Mbr 20 Nm	TENV [7]
[8]	Ubr 218-243 DC V	[8]
[9] 3~IEC60034 22935908 Made in Germany		[9]

33337401227

Line	Information
[1]	• Type designation
[2]	• Serial number
[3]	• Standstill torque • Variable torque • Rated speed • Mounting position
[4]	• Dynamic limit torque of the servomotor • Maximum permitted speed • Degree of protection according to IEC 60034-5
[5]	• Standstill current • Voltage at the open terminals of the motor at rated speed • Mass
[6]	• Maximum permitted current • Ambient temperature • Thermal class
[7]	• System voltage, voltage of the supplying inverter • Braking torque • TENV (Totally Enclosed Non-Ventilated)
[8]	• Brake voltage

Line	Information
[9]	• Country of manufacture
	• Number of phases and underlying rating and performance standards (EN/IEC 60034-X and/or equivalent national standard)

1.2.2   2nd nameplate of a CMP.. motor

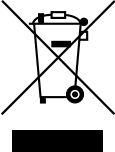The following figure shows the 2nd nameplate of a CMP.. motor:

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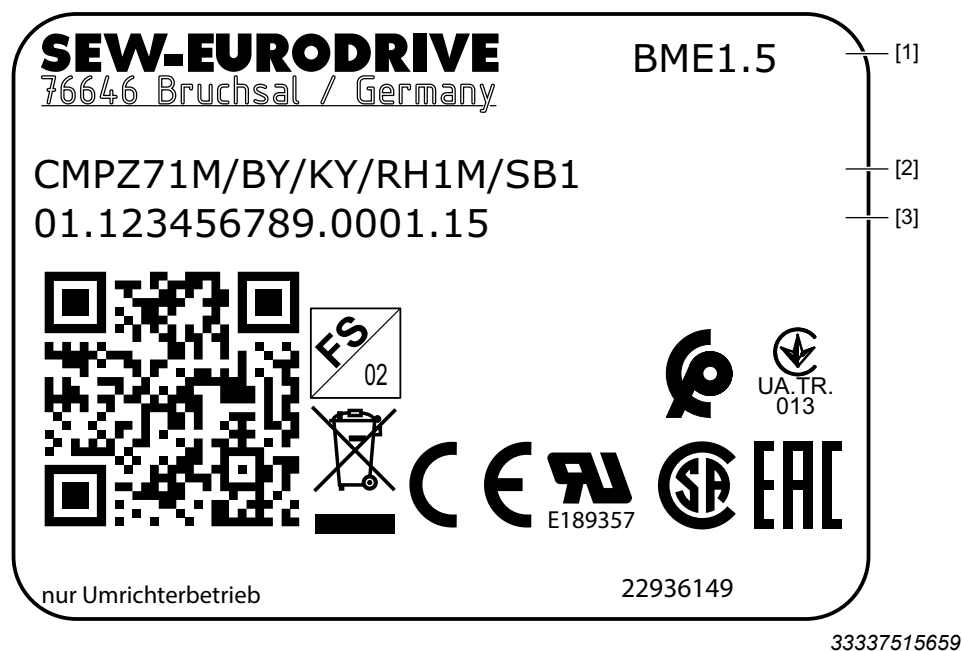
Line	Information
[1]	• Data for brake rectifier
[2]	• Type designation
[3]	• Serial number

Markings on the 2nd nameplate

The following table lists all the markings that can be provided on a nameplate or attached to the motor, and an explanation of what they mean.

CE	CE mark to state compliance with European guidelines, such as the Low Voltage Directive.
FS 02	FS logo with 2-digit number for identification of installed functional safety motor options
UL	UR logo to confirm that UL (Underwriters Laboratory) is informed about the registered components; register number by UL: E189357
MC170602 CSA	CSA mark to confirm the market conformity of the Canadian Standard Association (CSA)

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ᴇᴀᴄ	EAC mark (EurAsian Conformity) Confirms compliance with the technical regulations of the economic and customs union of Russia, Belarus, Kazakhstan, Armenia.
UA.TR. 013	UA.TR mark to confirm compliance with the technical regulations of the country Ukraine.
	CMIM logo to confirm compliance with technical regulations of the country Morocco.
	Motors and accessories may fall within the scope of the country-specific application of the WEEE Directive. Dispose of the product and of it's accessories according to the national regulations of your country.
	Product label with QR code. The QR code can be scanned. You will be redirected to the digital services of SEW-EURODRIVE. There, you have access to product-specific data, documents and further services.

1.3   Brake controls with functional control input

In addition to the voltage supply, the optional brake controls of the BMK., BMKB. and BMV. series offer a control input for a DC 24 V signal with which the brakes can be switched via a PLC.

It is a purely functional input that is not "functionally safe" with respect to safety technology.

Due to their operating principle, fault statuses may occur with these devices that lead to unintentional ongoing brake release, even if the control voltage has been switched off.

> ⚠ **WARNING**
>
> Unintentional ongoing brake release due to unrecognized malfunction of the brake control.
>
> Severe or fatal injuries, e.g. due to falling hoist or extended coasting.
>
> • Always disconnect all poles of the supply and control voltage for hoists and hoist-like applications.
>
> • Ensure that a malfunction of the control input can be detected through additional, suitable diagnostic measures e.g. by monitoring the braking current to meet high safety and reliability requirements.
>
> • Use the BST.. brake control for functional safety applications.
>
> • If you have any questions regarding the handling of the control input, contact SEW-EURODRIVE.

1.4 New temperature sensor /PK

The temperature sensor /PK replaces the previous temperature sensor /KY.

When using welding tong drives with FANUC interface, however, only temperature sensors /KY can be used.

INFORMATION

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Make sure that the inverter used has the appropriate evaluation electronics for the PK (PT1000) temperature sensor.

1.4.1 Type designation

/PK

1.4.2 Description

Thermal motor protection in combination with the corresponding evaluation electronics prevents the motor from overheating and consequently from being damaged. A temperature sensor provides only indirect protection as only one sensor value is determined.

The /PK design consists of a platinum sensor PT1000 installed in one of the three motor windings. Unlike the /KY semiconductor sensor, the platinum sensor has an almost linear characteristic curve and is more accurate. The frequency inverter can take on the function of motor protection via the /PK, when it is used in combination with a frequency inverter containing the thermal motor model.

1.4.3 Technical data

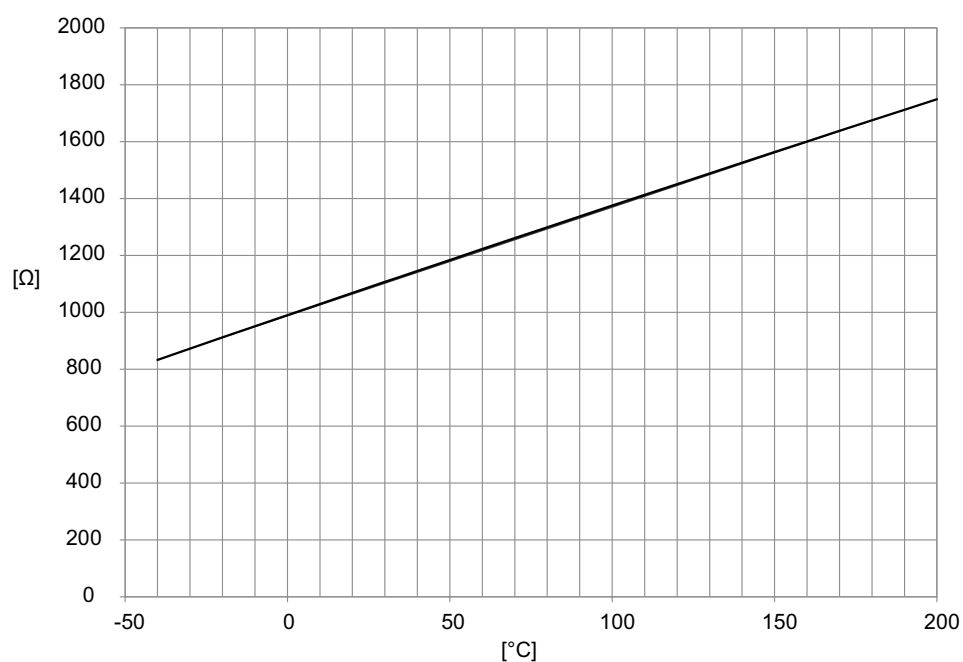The PT1000 temperature sensor continuously detects the motor temperature.

	PT1000
Connection	red – black
Total resistance at 20 – 25 °C	1050 Ω < R < 1150 Ω
Test current	< 3 mA

INFORMATION

The temperature sensor is unipolar which means that interchanging the incoming cables does not change the measurement result.
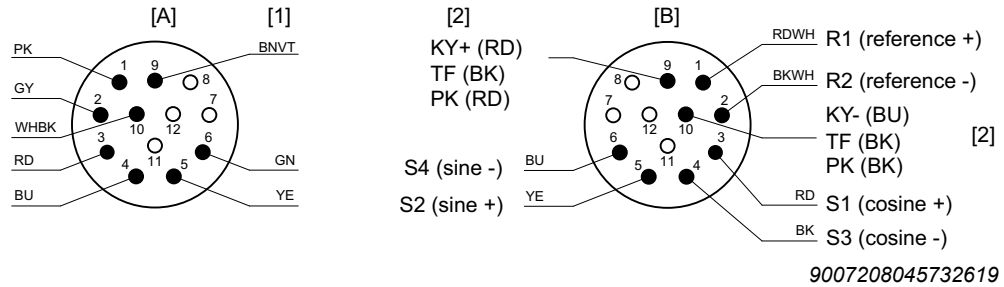
Typical characteristic curve of PT1000, F0.6

1.4.4 Electrical installation

Connecting the motor and the encoder system via plug connector SM. / SB.

Wiring diagrams of plug connectors

Wiring diagram for RH1M resolver signal plug connectors
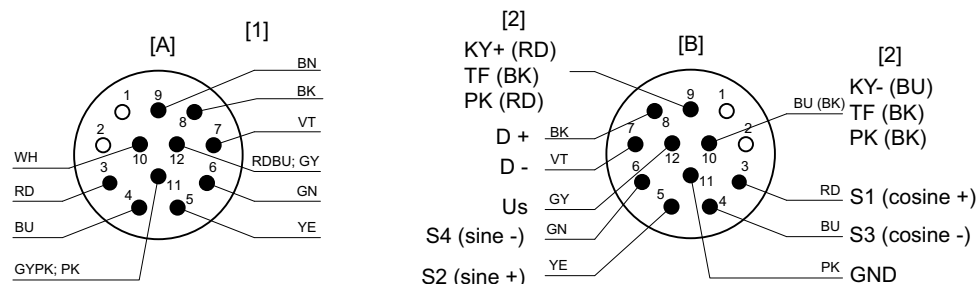
Wiring diagram

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[1] Shield connected to the metal housing of the connector. Color code according to SEW-EURODRIVE cable

[2] KY+ (RD), KY- (BU), optional TF (BK), optional PK (RD/BK)

Pin assignment of plug connector lower part [B]

Pin	Color code	Connection
1	RD/WH	R1 (reference +)
2	BK/WH	R2 (reference -)
3	RD	S1 (cosine +)
4	BK	S3 (cosine -)
5	YE	S2 (sine +)
6	BU	S4 (sine -)
7	–	–
8	–	–
9	BK	KY+/TF/PK
10	BK	KY-/TF/PK
11	–	–
12	–	–

Connection of signal plug connector encoder AK0H, EK0H, AK1H, EK1H

Wiring diagram

9007208045734539

[1]   Shield connected to the metal housing of the connector. Color code according to SEW-EURODRIVE cable

[2]   KY+ (RD), KY-(BU), optional TF (BK), optional PK (RD/BK)

Pin assignment of plug connector lower part [B]

Pin	Color code	Connection
1	–	–
2	–	–
3	RD	S1 (cosine +)
4	BU	S3 (cosine -)
5	YE	S2 (sine +)
6	GN	S4 (sine -)
7	VT	D -
8	BK	D +
9	BK	KY+/TF/PK
10	BK	KY-/TF/PK
11	PK	Voltage reference (GND)
12	GY	Supply voltage Vs

Connecting the motor and encoder system via KK, KKS, KL, and KLS terminal boxes

- Check the cable cross sections.
- Screw on the connections and PE conductors.
- Check the winding connections in the terminal box and tighten them, if necessary.
- You have to use an EMC cable gland for the signal cable entry in order to ensure a flawless shielding.
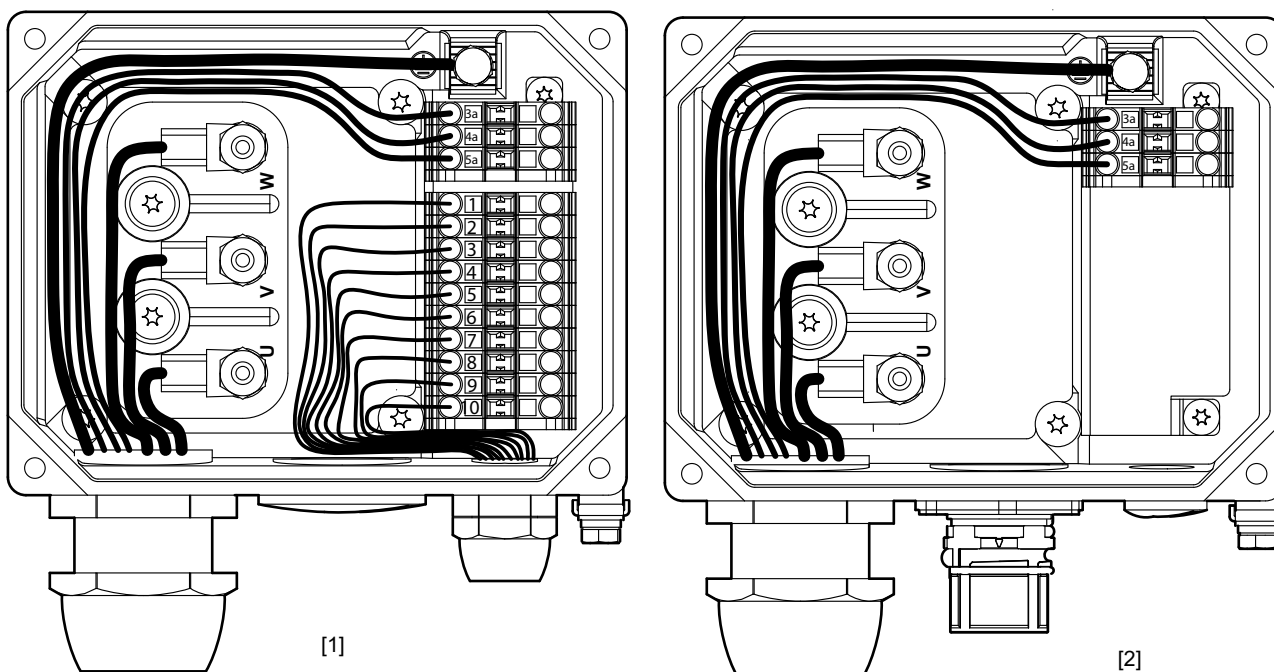
Connection of CMP50 and CMP63
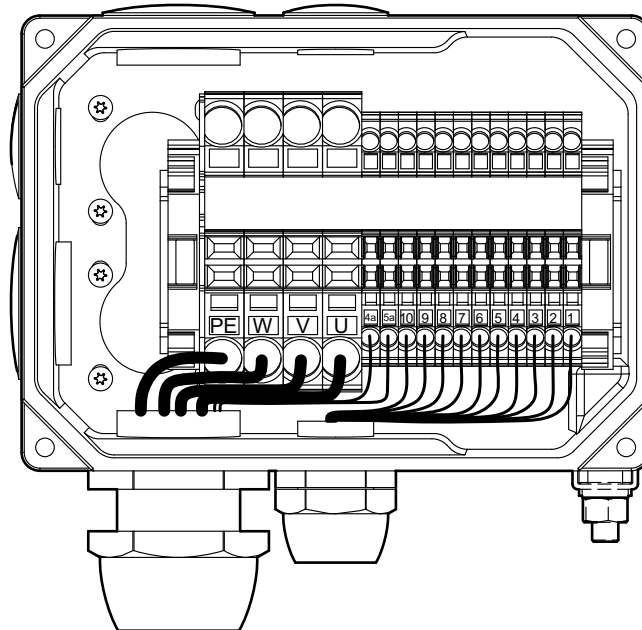
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Signal

Resolver			Encoder		
1	ref +	Reference	1	cos +	Cosine
2	ref -		2	ref cos	Reference
3	cos +	Cosine	3	sin+	Sine
4	cos -		4	ref sin	Reference
5	sin+	Sine	5	D -	DATA
6	sin -		6	D +	DATA
7	–	–	7	GND	Ground
8	–	–	8	Us	Supply voltage
9	KY+/PK/TF	Motor protection	9	KY+/PK/TF	Motor protection
10	KY-/PK/TF		10	KY-/PK/TF	

Connecting CMP71 – CMP112

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[1]   KK, KL terminal box
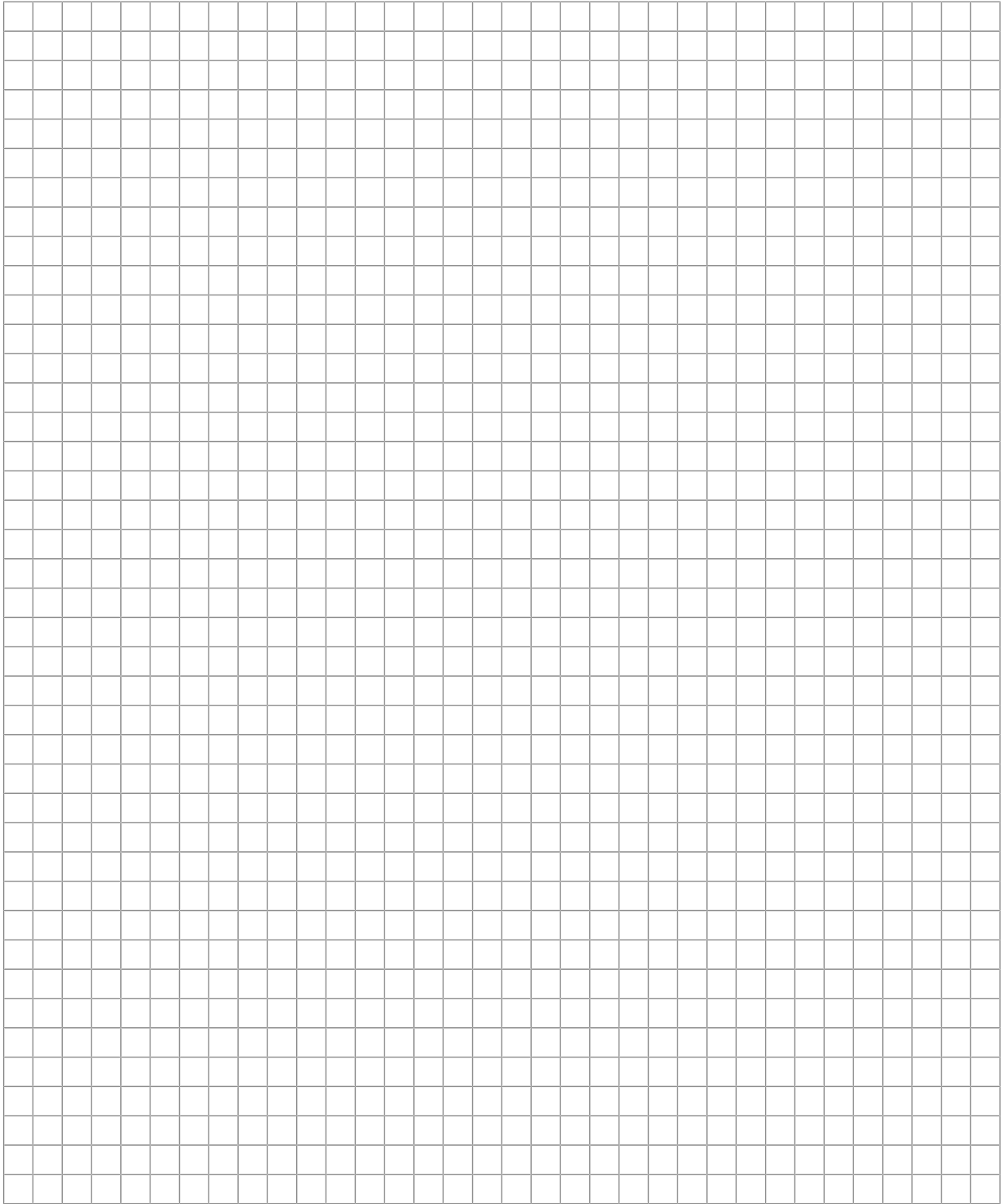[2]   KKS, KLS terminal box

Signal

	Resolver			Encoder	
1	ref +	Reference	1	cos +	Cosine
2	ref -		2	ref cos	Reference
3	cos +	Cosine	3	sin+	Sine
4	cos -		4	ref sin	Reference
5	sin+	Sine	5	D -	DATA
6	sin -		6	D +	DATA
7	–	–	7	GND	Ground
8	–	–	8	Us	Supply voltage
9	KY+/PK/TF	Motor protection	9	KY+/PK/TF	Motor protection
10	KY-/PK/TF		10	KY-/PK/TF	

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